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## Volume 1. Western Washington

Geological Survey, Tacoma, Wash Water Resources Div

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# CALENDAR FOR WATER YEAR 1976

## 1975

### OCTOBER

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
|  |  |  | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
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### NOVEMBER

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### DECEMBER

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## 1976

### JANUARY

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| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
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### FEBRUARY

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### MARCH

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### APRIL

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### MAY

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| 23 | 24 | 25 | 26 | 27 | 28 | 29 |
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### JUNE

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| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
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### JULY

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### AUGUST

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| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
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### SEPTEMBER

| S | M | T | W | T | F | S |
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| 26 | 27 | 28 | 29 | 30 |  |  |

# Water Resources Data for Washington

## Water Year 1976

Volume 1. Western Washington

U.S. DEPARTMENT OF THE INTERIOR

MARCH 3, 1849

**U.S. GEOLOGICAL SURVEY WATER-DATA REPORT WA-76-1**

**Prepared in cooperation with the State of Washington**
**and with other agencies**

UNITED STATES DEPARTMENT OF THE INTERIOR

THOMAS S. KLEPPE, Secretary

GEOLOGICAL SURVEY

V. E. McKelvey, Director

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1977

# PREFACE

This report was prepared by personnel of the Washington district of the Water Resources Division of the U.S. Geological Survey under the supervision of J. E. McCall, District Chief, and W. H. Robinson, Regional Hydrologist, Western Region. It was done in cooperation with the State of Washington and with other agencies.

This report is one of a series issued by State. General direction for the series is by J. S. Cragwall, Jr., Chief Hydrologist, U.S. Geological Survey, and G. W. Whetstone, Assistant Chief Hydrologist for Scientific Publications and Data Management.

Data for Washington are in two volumes as follows:

Volume 1. Western Washington
Volume 2. Eastern Washington

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## GAGING STATIONS IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

*(Letter after station name designates type of data: (d) discharge (e) elevation, gage height or contents, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment, (p) pesticide)*

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# WATER RESOURCES DATA FOR WASHINGTON, 1976

## INTRODUCTION

Water resources data for the 1976 water year for Washington consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels of ground water. This report contains discharge records for 248 gaging stations; stage only records for 3 gaging stations; stage and contents for 44 lakes and reservoirs; water quality for 123 gaging stations, 1 partial-record station, and 7 lakes; and water levels for 108 observations wells. Also included are 172 crest-stage partial-record stations and 1 low-flow partial-record station. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Washington.

Volume 1 of this report contains data for Western Washington and is defined as the Pacific Slope Basins and that portion of the Lower Columbia River Basin downstream from and including the White Salmon River Basin. Volume 2 of this report contains data for Eastern Washington and is defined as the Upper Columbia River Basin, the Snake River Basin and the Lower Columbia River Basin upstream from the White Salmon River Basin.

Records of discharge or stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cites in the Unites States or may be purchased from Branch of Distribution, U.S. Geological Survey, 604 South Pickett Street, Alexandria, Va. 22304.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records. Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published as an official Survey report on a State-boundary basis. These official Survey reports carry an identification number consisting of the two letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report WA-76-1." Water-Data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia, 22161.

## COOPERATION

The U.S. Geological Survey and organizations of the State of Washington have had cooperative agreements for the systematic collection of surface-water and water-quality records since 1909. Organizations that supplied data are acknowledged in the station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

Washington State Department of Ecology, J. A. Biggs, director
Washington State Department of Fisheries, D. W. Moos, director
Washington State Department of Highways, William A. Bulley, director
Washington State Department of Game, Ralph W. Larson, director
City of Port Angeles, C. R. Willson, mayor
City of Seattle, Department of Lighting, Gordon Vickery, superintendent
Municipality of Metropolitan Seattle, Richard S. Page, executive director
City of Tacoma, Department of Public Utilities, A. J. Benedetti, director
City of Tacoma, Department of Public Works, Ronald M. Button, director
Tulalip Tribal Board of Directors, G. S. Williams, chairman
Yakima Tribal Council, Watson Totus, chairman

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 44 gaging stations; the U.S. Environmental Protection Agency, in collecting records for 12 water-quality stations; the U.S. Energy Research and Development Administration, in collecting records for 6 water-quality stations; the Bureau of Reclamation, U.S. Department of Interior, in collecting records for 18 gaging stations; the U.S. Department of State, in collecting records for 13 gaging stations; the Bonneville Power Administration, in collecting records for 4 gaging stations.

The following organizations aided in collecting records:

The cities of Bellevue and Everett; Crown Zellerbach Corporation; Intercounty River Improvement; ITT Rayonier; King County Department of Public Works; Pacific Power and Light Co., Public Utility Districts No. 1 of Chelan County, No. 1 of Cowlitz County, No. 1 of Douglas County, No. 2 of Grant County, No. 1 of Pend Oreille County; Puget Sound Power and Light Co.; Skagit County Engineer; Spokane Tribe of Indians; University of Washington, through its Fisheries Research Institute; Washington Public Power Supply System; Washington Water Power Co.; Whatcom County Engineer.

## DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report are defined below. See also table for converting English units to International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, ac-ft) is a quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic metres.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Bacteria are microscopic unicellular organisms, typically spherical, rod-like, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse of plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of samples.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

> Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter ($g/m^3$), and periphyton and benthic organisms in grams per square meter ($g/m^2$).
>
> Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.
>
> Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.
>
> Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material

Cells /volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonacous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloro-platinate ion. Color is expressed in units of the platinum-cobalt scale.

*Contents* is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

*Control* designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

*Control structure* as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

*Cubic feet per second per square mile* (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

*Cubic foot per second* ($FT^3/s$, $ft^3/s$) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

*Discharge* is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

*Mean discharge* (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

*Instantaneous discharge* is the discharge at a particular instant of time.

*Dissolved* refers to the amount of substance present in true chemical solution. In practice, however, the term includes all forms of substance that will pass through a 0.45-micrometer membrane filter, and thus may include some very small (coloidal) suspended particles. Analyses are performed on filtered samples.

*Diversity index* is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where $n_i$ is the number of individuals per taxon, $n$ is the total number of individuals, and $s$ is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution area, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (ug/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters ($m^2$), acres, or hectares. Periphyton benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Partial-size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

| Classification | Size (mm) | Method of analysis |
|---|---|---|
| Clay.......... | 0.00024 - 0.004 | Sedimentation. |
| Silt.......... | .004 - .062 | Sedimentation. |
| Sand.......... | .062 - 2. | Sedimentation or sieve. |
| Gravel........ | 2.0 - 64.0 | Sieve. |

The particle-size distribution given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillienth ($1 \times 10^{12}$) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields $3.7 \times 10^{10}$ radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those higher green plants. Some forms produce algal mats or floating "moss in lakes. Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as rock or tree, upon which an organism lived.

*Artificial substrate* is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

*Surface area* of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

*Suspended* (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that material retained on a 0.45 micrometer filter.

*Time-weighted average* is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

*Tons per acre-foot* indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

*Tons per day* is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

*Total load* (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

*Taxonomy* is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, *Hexagenia limbata* is the following:

| | |
|---|---|
| Kingdom | Animal |
| Phylum | Arthropoda |
| Class | Insecta |
| Order | Ephemeroptera |
| Family | Ephemeridae |
| *Genus* | *Hexageria* |
| *Species* | *Hexagenia limbata* |

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-e weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

## DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete 8-digit number for each station such as 12041000, which appears just to the left of the station name, includes the 2-digit part number "12" plus the 6-digit downstream order number "041000".

## NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 1 below.

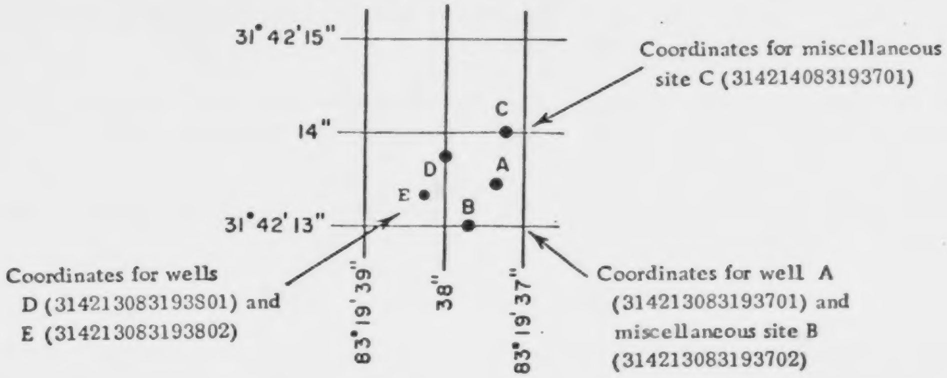
31°42'15"
14"
31°42'13"
C
D
A
E
B
83°19'39"
38"
83°19'37"
Coordinates for miscellaneous site C (314214083193701)
Coordinates for wells D (314213083193S01) and E (314213083193802)
Coordinates for well A (314213083193701) and miscellaneous site B (314213083193702)

Figure 1. System for numbering wells and miscellaneous sites (latitude and longitude)

## SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National strean-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly samples water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are samples represent major drainage basins in the conterminous United States.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

## EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

### Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text-books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), stepbackwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some northern stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the staion and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lake and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations or revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from most accurate maps available. River mileage given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use, the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the Topographic Division of the Geological Survey unless otherwise qualified.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE", it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR: if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skeleton rating tables are published, immediately following EXTREMES, for stream-gaging stations where they serve a useful purpose and the dated of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

## Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

## Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

## EXPLANATION OF WATER-QUALITY RECORDS

### Collection and examination of data

Surface water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

### Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight untake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

### Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diel temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

All temperature values in the daily tables are rounded to the nearest 0.5°C. Therefore, temperature values published in conjunction with water samples may be 0.1 to 0.2°C outside the range of the values published in the daily tables.

### Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During period of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

## EXPLANATION OF GROUND-WATER LEVEL RECORDS

### Collection of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figure 1.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level is given in the well description. The height of the measuring point (MP) above or below land surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

## HYDROLOGIC CONDITIONS

The annual runoff in western Washington during the 1976 water year ranged generally from about 120 to 130 percent of average. Major flooding occurred in December 1975 causing flooding of several rivers and major damage to farm lands and livestock. Considerable damage was averted, however, through regulation by available flood-control reservoirs.

Streamflow for October was above average in lowland streams and about normal in streams having their headwaters at higher elevations. In November and December, streamflow generally was above average producing volumes of runoff exceeding high peaks of record on many streams. This was caused by a series of storms and heavy snowmelt in late November and early December. January streamflow was above average while February flows were average or below. Streamflow at lower elevations was above normal in March and in the normal range April to June, while those with headwaters at higher elevation were below normal March and April and in the normal range May and June. Heavier precipitation in July and August caused excessive runoff. September streamflow was normal or slightly above due to precipitation being near to below average. Monthly and annual mean discharges are compared with medians at two representative gaging stations in figure 2.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-one manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A. of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publications, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 604 South Picket Street, Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering any of these publications, please give the title, book number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature-influential factors, field measurement, and data presentation,* by H. H. Stevens Jr., J. F. Ficke, and G. F. Smoot: USGS-TWRI Book 1, Chapter D1. 1975. 65 p. $1.60.

2-D1. *Application of surface geophysics to ground-water investigations,* by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages. $1.90

2-E1. *Application of borehole geophysics to water-resources investigations,* by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages. $1.75.

3-A1. *General field and office procedures for indirect discharge measurements,* by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages. $0.25.

3-A2. *Measurement of peak discharge by the slope-area method,* by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages. $0.20.

3-A3. *Measurement of peak discharge at culverts by indirect methods,* by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages. $0.40.

3-A4. *Measurement of peak discharge at width contractions by indirect methods,* by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages. $1.00.

3-A5. *Measurement of peak discharge at dams by indirect methods,* by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages. $0.30.

3-A6. *General procedure for gaging streams,* by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Capter A6, 1968, 13 pages. $0.20.

3-A7. *Stage measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages. $0.45.

3-A8. *Discharge measurements at gaging stations,* T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages. $1.25.

3-A11. *Measurement of discharge by moving-boat method,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages. $0.40.

3-A12. *Fluorometric procedures for dye tracing,* by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. $0.35. Not currently available.

3-B1. *Aquifer-test design, observation, and data analysis,* by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages. $0.70.

3-B2. *Introduction to ground-water hydraulics-a programed text for self-instruction,* by D. S. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-Cl. *Fluvial sediment concepts,* by H. P. Guy: USGS--TWRI Book 3, Chapter Cl. 1970. 55 pages. $0.65.

3-C2. *Field methods for measurement of fluvial sediment,* by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2, 1970. 59 pages. $0.70.

3-C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS--TWRI Book 3, Chapter C3, Chapter 3. 1972. 66 pages. $1.15.

4-Al. *Some statistical tools in hydrology,* by H. C. Riggs: USGS--TWRI Book 4 Chapter Al. 1968. 39 pates. $0.30.

4-A2. *Frequency curves,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages. $0.20.

4-Bl. *Low-flow investigations,* by H. C. Riggs: USGS--TWRI Book 4, Chapter Bl. 1972. 18 pages. $0.65.

4-B2. *Storage analyses for water supply,* by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages. $0.75.

4-B3. *Regional analyses of streamflow characteristics,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages. $0.75.

4-Dl. *Computation of rate and volume of stream depletion by wells,* by C. T. Jenkins: USGS--TWRI Book 4, Chapter Dl. 1970. 17 pages. $0.65.

5-Al. *Methods for collection and analysis of water samples for dissolved minerals and gases,* by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter Al. 1970. 160 pages $2.40.

5-A2. *Determination of minor elements in water emission spectroscopy,* by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages. $0.80.

5-A3. *Methods for analysis of organic substances in water,* by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages. $0.90.

5-A4. *Methods for collection and anlysis of aquatic biological and microbiological samples,* by K. V. Slack, R. C. Averett, P. E. Greeson, and R. G. Lipscomb: USGS--TWRI Book 5, Chapter A4. 1973. 165 pages. $1.95.

5-Cl. *Laboratory theory and methods for sediment analysis,* by H. P. Guy: USGS--TWRI Book 5, Chapter Cl. 1960. 58 pages. $0.65.

7-Cl. *Finite-difference model for aquifer simulation in two dimensions with results of numerical experiments,* by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter Cl. 1976. 116 pages.

8-Al. *Methods of measuring water levels in deep wells,* by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter Al. 1968. 23 pages. $0.70.

8-B2. *Calibration and maintenance of vertical-axis type current meters,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages. $0.40.

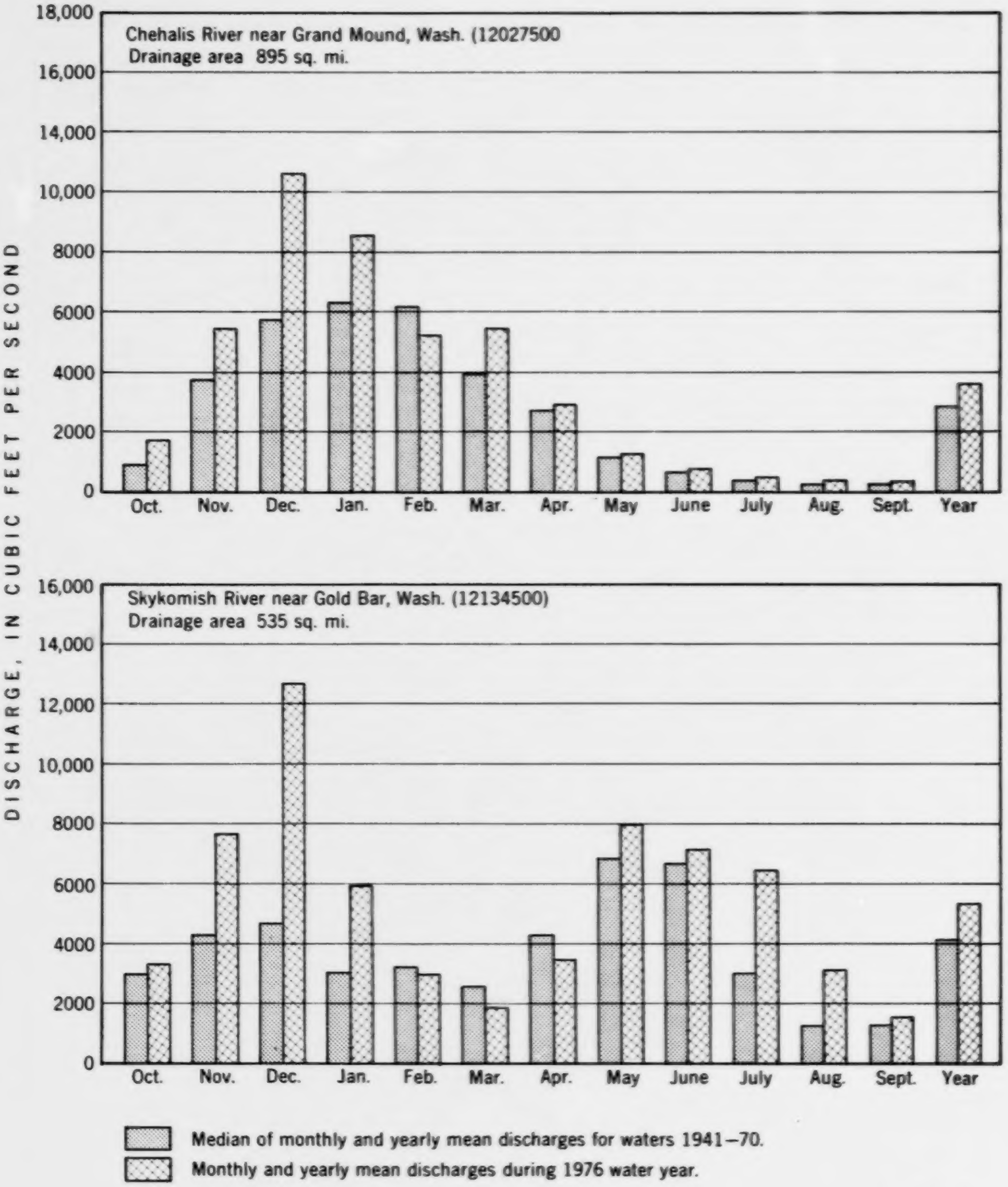

FIGURE 2.--Discharge during 1976 water year compared with median discharge for period 1941–70 for two representative gaging stations.

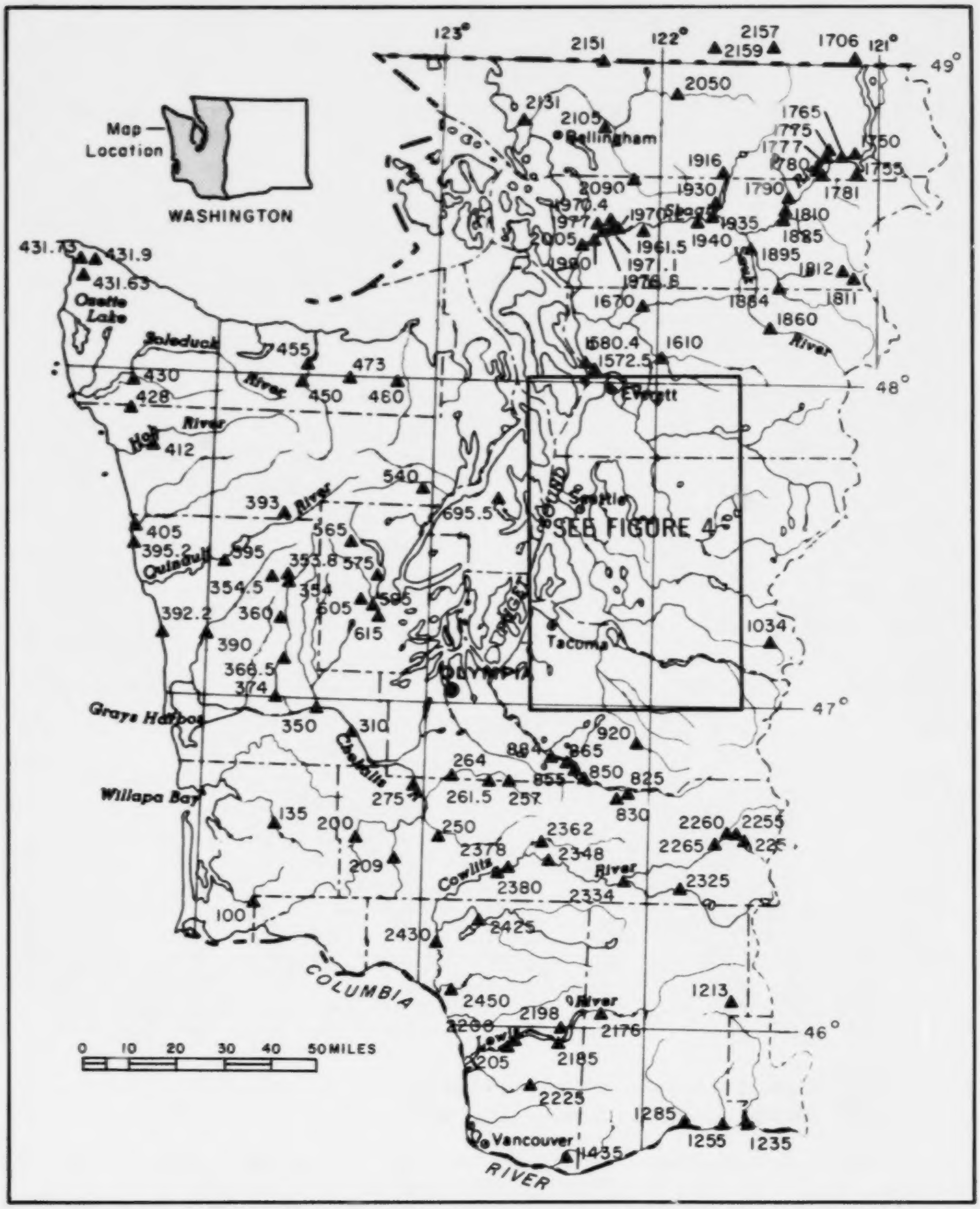
Map Location
WASHINGTON
123°
122°
121°
49°
48°
47°
46°
Bellingham
Everett
Seattle
Tacoma
OLYMPIA
Vancouver
SEE FIGURE 4
Ozette Lake
Soleduck River
Hoh River
Queets River
Quinault
Grays Harbor
Willapa Bay
Chehalis
Cowlitz River
Skagit
Lewis
River
COLUMBIA RIVER
0 10 20 30 40 50 MILES
2151
2157
2159
1706
2050
2131
2105
1916
1765
1775
1777
1780
1750
1755
1781
1790
2090
1930
1970.4
1977
1970
1935
1810
1885
1895
2005
1940
1961.5
1971.1
1976.8
1980
1912
1811
1670
1864
1860
1580.4
1572.5
1610
431.75
431.9
431.65
7455
473
430
428
450
460
412
540
393
695.5
405
395.2
595
365
353.6
575
354.5
354
596
605
360
615
392.2
390
366.5
374
1034
350
310
920
884
865
850
825
264
261.5
257
855
275
830
135
200
250
2362
2260
2255
2265
2378
2348
209
2380
2325
2334
100
2430
2425
1213
2450
2198
2176
2200
2205
2185
2225
1285
1255
1235
1435

Figure 3. Map of Western Washington showing locations of gaging stations operated by the U.S. Geological Survey in cooperation with other agencies. Numbers shown are abbreviated versions of complete station numbers used in text.

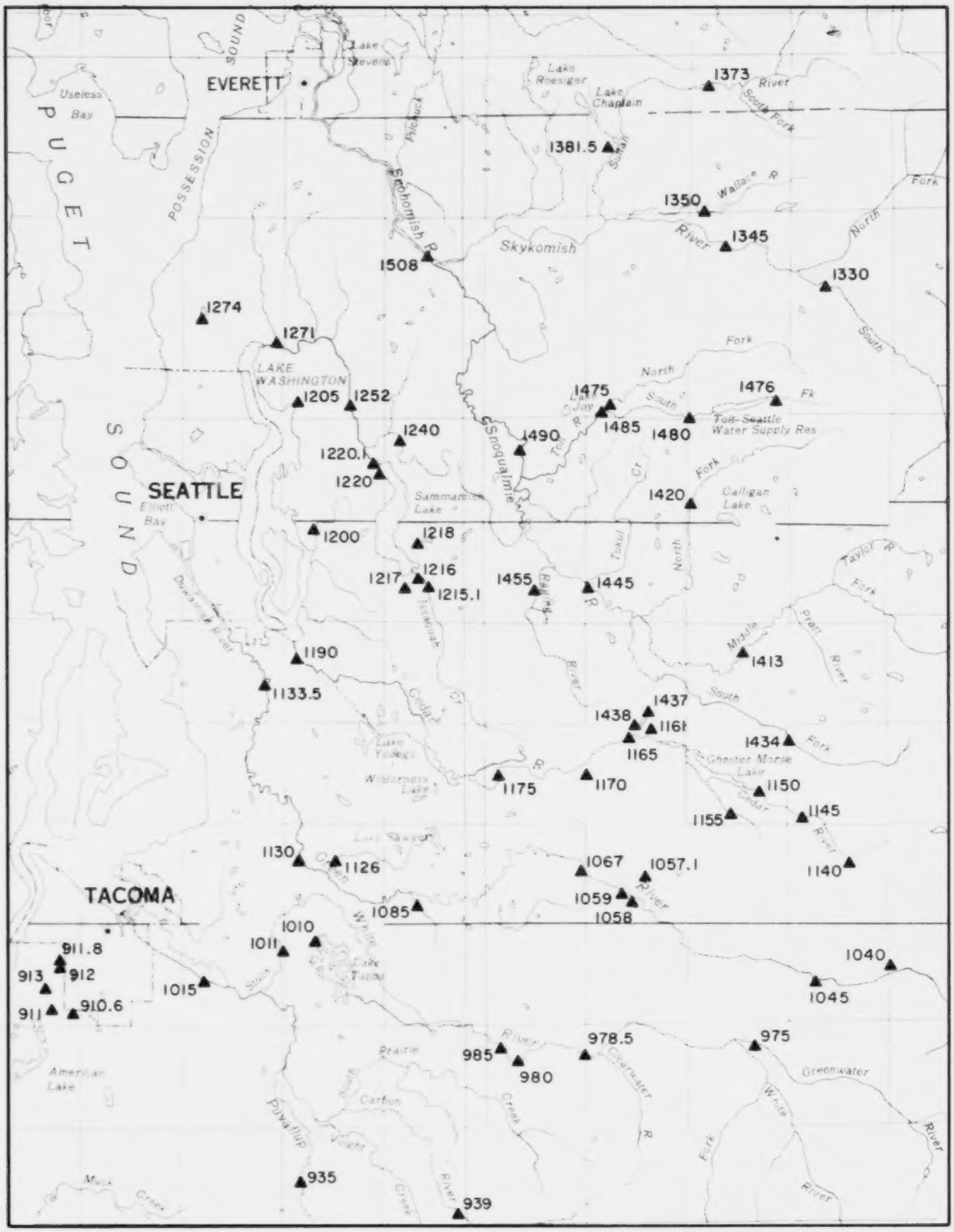
EVERETT
SEATTLE
TACOMA
PUGET SOUND
POSSESSION SOUND
Useless Bay
Lake Stevens
Lake Roesiger
Lake Chaplain
LAKE WASHINGTON
Elliott Bay
Sammamish Lake
Lake Youngs
Wilderness Lake
Lake Sawyer
Lake Tapps
American Lake
Chester Morse Lake
Calligan Lake
Tolt-Seattle Water Supply Res
Snohomish R
Skykomish
Snoqualmie
Wallace R
Sultan
Pilchuck
Duwamish River
Issaquah
Cedar R
Green River
White River
Puyallup
Carbon
Clearwater R
Greenwater
Taylor R
Pratt River
Middle Fork
South Fork
North Fork
Tolt R
Raging R
Tokul Cr
Stuck
Prairie
Voight Creek
South Prairie Creek
Muck Creek
1373
1381.5
1350
1345
1330
1508
1274
1271
1205
1252
1240
1475
1485
1480
1476
1490
1220.1
1220
1420
1200
1218
1217
1216
1215.1
1455
1445
1190
1133.5
1413
1437
1438
1161
1165
1434
1175
1170
1150
1155
1145
1130
1126
1067
1057.1
1140
1059
1058
1085
1010
1011
1040
911.8
913
912
1015
1045
911
910.6
978.5
975
985
980
935
939

Figure 4. Map showing locations of gaging stations in the insert of Figure 3.

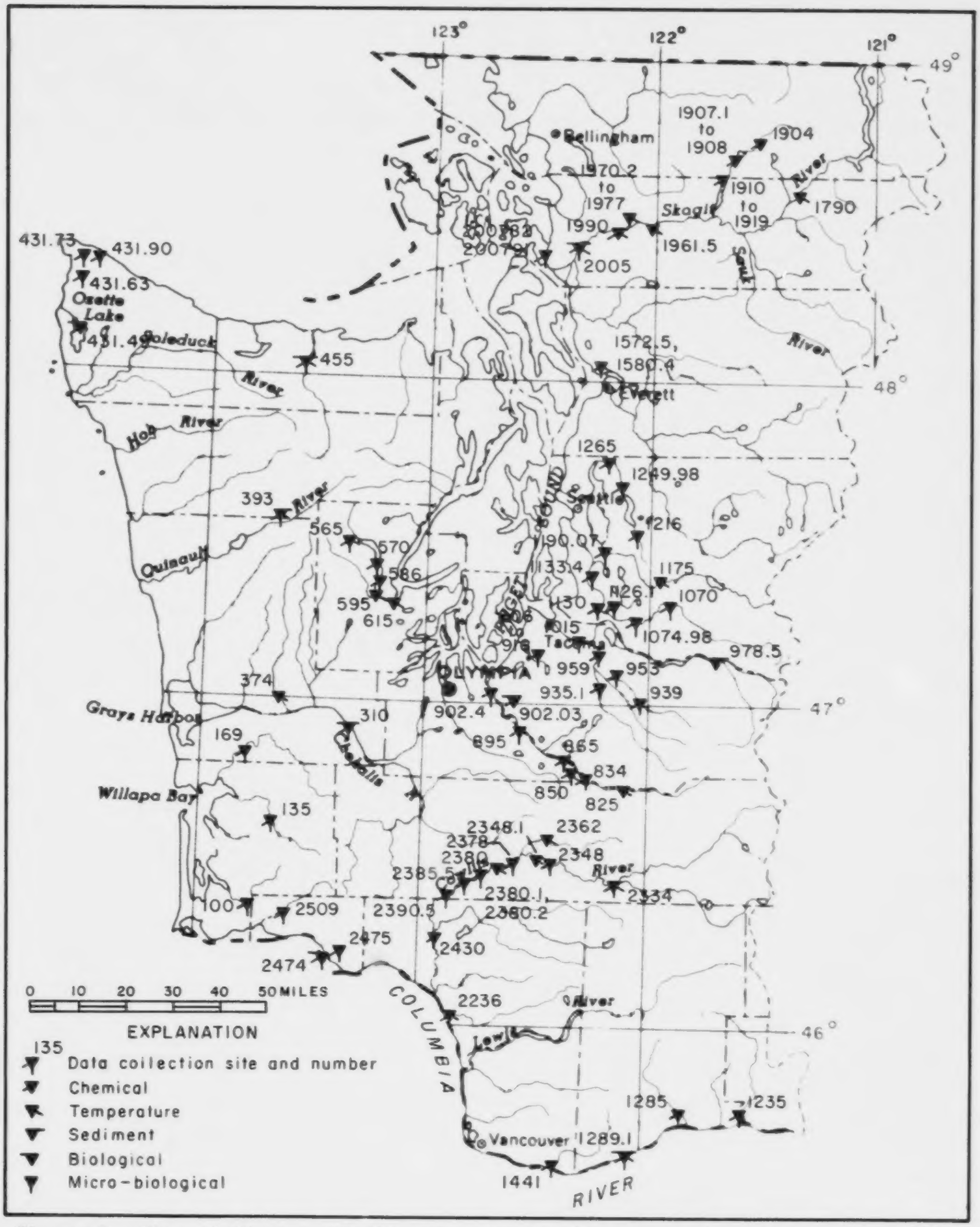
123°
122°
121°
49°
48°
47°
46°
Bellingham
1907.1 to 1908
1904
1970.2 to 1977
1910 to 1919
1790
Skagit
1990
1961.5
2005
River
431.73
431.90
431.63
Ozette Lake
431.4
Soleduck
455
River
Hoh River
1572.5,
1580.4
Everett
1265
1249.98
Seattle
393
River
565
570
1216
Quinault
586
190.07
1133.4
1175
595
615
1126.1
1070
130
1074.98
978.5
OLYMPIA
959
953
Tacoma
374
935.1
939
Grays Harbor
310
902.4
902.03
169
895
865
Chehalis
834
850
825
Willapa Bay
135
2348.1
2362
2378
2380
2348
2385.5
River
2380.1
2334
100
2509
2390.5
2380.2
2475
2474
2430
0 10 20 30 40 50 MILES
COLUMBIA
2236
River
Lewis
EXPLANATION
135
Data collection site and number
Chemical
Temperature
Sediment
Biological
Micro-biological
1285
1235
Vancouver
1289.1
1441
RIVER

Figure 5. Map of Western Washington showing locations of surface-water-quality sampling stations operated by the U.S. Geological Survey in cooperation with other agencies. Numbers shown are abbreviated versions of complete station number used in text.

## NASELLE RIVER BASIN

## 12010000 NASELLE RIVER NEAR NASELLE, WA

LOCATION.--Lat 46°22'27", long 123°44'32", in SW¼SW¼ sec.1, T.10 N., R.9 W., Pacific County, Hydrologic Unit 17100106, on right bank 0.1 mi (0.2 km) upstream from county highway bridge, 2.2 mi (3.5 km) upstream from Salmon Creek, 3.4 mi (5.5 km) east of Naselle and at mile 17.4 (28.0 km).

DRAINAGE AREA.--54.8 mi² (141.9 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1929 to current year.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1316: 1930(M), 1932-40(M), 1945-46(M).

GAGE.--Water-stage recorder. Altitude of gage is 24 ft (7.3 m), by barometer. Prior to Jan. 11, 1957, nonrecording gage and crest-stage gage at site 1,350 ft (411 m) downstream at present datum. Jan. 11, 1957, to Dec. 31, 1961, nonrecording gage and crest-stage gage at site 1,200 ft (366 m) downstream at present datum.

REMARKS.--Water-discharge records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--47 years, 437 ft³/s (12.38 m³/s), 108.29 in/yr (2,751 mm/yr), 316,600 acre-ft/yr (390 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft³/s (314 ³/s) Jan. 22, 1935, gage height, 15.9 ft (4.85 m) from flood marks, site then in use, from rating curve extended above 4,000 ft³/s (113 m³/s) on basis of slope-area measurement at gage height 15.2 ft (4.63 m); minimum, 18 ft³/s (0.51 m³/s) Aug. 30, 31, Sept. 1, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 4,000 ft³/s (113 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 30 | 0200 | 5,790 | 164 | 13.32 | 4.060 | Dec. 26 | 1100 | 5,480 | 155 | 12.98 | 3.956 |
| Dec. 1 | 2200 | *7,580 | 215 | *15.16 | 4.621 | Jan. 15 | 1700 | 6,360 | 180 | 13.95 | 4.252 |
| Dec. 4 | 0300 | 6,250 | 177 | 13.83 | 4.215 | | | | | | |

Minimum discharge, 43 ft³/s (1.22 m³/s) Oct. 1, 2, gage height, 3.80 ft (1.158 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 44 | 1100 | 5470 | 735 | 326 | 543 | 530 | 192 | 210 | 93 | 54 | 66 |
| 2 | 45 | 884 | 6000 | 615 | 298 | 482 | 458 | 187 | 190 | 82 | 53 | 64 |
| 3 | 124 | 847 | 5220 | 561 | 277 | 430 | 402 | 176 | 163 | 74 | 52 | 63 |
| 4 | 167 | 772 | 4700 | 1740 | 253 | 386 | 358 | 165 | 145 | 93 | 51 | 60 |
| 5 | 260 | 725 | 2080 | 1780 | 232 | 346 | 326 | 173 | 136 | 87 | 51 | 64 |
| 6 | 261 | 872 | 1190 | 1320 | 214 | 316 | 302 | 155 | 122 | 74 | 50 | 68 |
| 7 | 178 | 952 | 980 | 1140 | 207 | 302 | 284 | 145 | 114 | 96 | 52 | 62 |
| 8 | 222 | 954 | 885 | 1140 | 207 | 284 | 278 | 136 | 110 | 309 | 54 | 58 |
| 9 | 452 | 882 | 760 | 990 | 201 | 274 | 246 | 129 | 104 | 190 | 52 | 54 |
| 10 | 389 | 756 | 650 | 1470 | 187 | 312 | 232 | 143 | 104 | 153 | 50 | 52 |
| 11 | 280 | 637 | 566 | 2330 | 295 | 312 | 228 | 148 | 106 | 134 | 46 | 52 |
| 12 | 223 | 551 | 514 | 1470 | 690 | 284 | 210 | 127 | 136 | 120 | 45 | 76 |
| 13 | 192 | 618 | 490 | 1050 | 514 | 284 | 195 | 118 | 114 | 114 | 54 | 66 |
| 14 | 185 | 1840 | 446 | 2050 | 510 | 292 | 207 | 112 | 102 | 104 | 116 | 160 |
| 15 | 280 | 2860 | 780 | 4680 | 597 | 267 | 278 | 106 | 110 | 95 | 118 | 112 |
| 16 | 228 | 1810 | 705 | 3200 | 1680 | 264 | 267 | 102 | 173 | 89 | 358 | 84 |
| 17 | 950 | 1310 | 611 | 1530 | 1830 | 295 | 246 | 114 | 150 | 84 | 242 | 74 |
| 18 | 1090 | 983 | 539 | 985 | 1510 | 544 | 236 | 102 | 131 | 80 | 155 | 68 |
| 19 | 876 | 776 | 486 | 720 | 1080 | 562 | 246 | 95 | 118 | 77 | 125 | 64 |
| 20 | 693 | 629 | 442 | 570 | 825 | 800 | 298 | 93 | 108 | 79 | 136 | 60 |
| 21 | 598 | 533 | 406 | 474 | 665 | 705 | 281 | 87 | 102 | 76 | 112 | 58 |
| 22 | 536 | 528 | 382 | 434 | 548 | 780 | 253 | 84 | 98 | 71 | 98 | 59 |
| 23 | 455 | 883 | 462 | 386 | 490 | 855 | 256 | 86 | 96 | 70 | 93 | 58 |
| 24 | 403 | 795 | 870 | 334 | 552 | 2590 | 316 | 102 | 100 | 66 | 100 | 55 |
| 25 | 849 | 659 | 885 | 305 | 570 | 1730 | 295 | 116 | 93 | 64 | 96 | 53 |
| 26 | 1020 | 1170 | 4120 | 281 | 570 | 1240 | 274 | 93 | 86 | 60 | 95 | 52 |
| 27 | 1470 | 1030 | 2130 | 720 | 675 | 1140 | 253 | 89 | 79 | 59 | 84 | 51 |
| 28 | 1540 | 834 | 1170 | 575 | 710 | 1200 | 235 | 89 | 76 | 57 | 80 | 50 |
| 29 | 3460 | 678 | 1000 | 470 | 625 | 945 | 219 | 114 | 73 | 55 | 76 | 48 |
| 30 | 4120 | 2310 | 1050 | 414 | --- | 760 | 204 | 158 | 74 | 55 | 71 | 47 |
| 31 | 1780 | --- | 880 | 370 | --- | 650 | --- | 184 | --- | 55 | 68 | --- |
| TOTAL | 23370 | 30178 | 46869 | 34839 | 17343 | 20174 | 8413 | 3920 | 3523 | 2915 | 2887 | 1958 |
| MEAN | 754 | 1006 | 1512 | 1124 | 598 | 651 | 280 | 126 | 117 | 94.0 | 93.1 | 65.3 |
| MAX | 4120 | 2860 | 6000 | 4680 | 1830 | 2590 | 530 | 192 | 210 | 309 | 358 | 160 |
| MIN | 44 | 528 | 382 | 261 | 187 | 264 | 195 | 84 | 73 | 55 | 45 | 47 |
| CFSM | 13.8 | 18.4 | 27.6 | 20.5 | 10.9 | 11.9 | 5.11 | 2.30 | 2.14 | 1.72 | 1.70 | 1.19 |
| IN. | 15.86 | 20.49 | 31.82 | 23.65 | 11.77 | 13.69 | 5.71 | 2.66 | 2.39 | 1.98 | 1.96 | 1.33 |
| AC-FT | 46350 | 59860 | 92960 | 69100 | 34400 | 40020 | 16690 | 7780 | 6990 | 5780 | 5730 | 3880 |

CAL YR 1975 TOTAL 192415 MEAN 527 MAX 6000 MIN 34 CFSM 9.62 IN 130.62 AC-FT 381700
WTR YR 1976 TOTAL 196389 MEAN 537 MAX 6000 MIN 44 CFSM 9.80 IN 133.31 AC-FT 389500

## 12010000 NASELLE RIVER NEAR NASELLE, WA--Continued

### WATER-QUALITY RECORDS

LOCATION.--Samples taken 1,350 ft (411 m) downstream from gaging station.

PERIOD OF RECORD.--Water years 1963-73, November 1975 to September 1976.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August 1963 to September 1973.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

**WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976**

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) |
|---|---|---|---|---|---|---|---|
| NOV 24... | 1320 | 780 | 61 | 7.4 | 9.4 | 21 | 7 |
| MAR 16... | 1250 | 260 | 58 | 7.5 | 8.5 | 8 | 3 |
| JUN 14... | 1300 | 102 | 56 | 6.9 | 13.0 | 17 | 1 |
| AUG 16... | 1230 | 490 | 52 | 7.2 | 12.4 | 46 | 22 |

| DATE | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| NOV 24... | 12.7 | B350 | B20 | .46 | .05 | .02 | .00 |
| MAR 16... | 12.9 | 220 | B4 | .24 | .06 | .01 | .00 |
| JUN 14... | 11.1 | B90 | B4 | .12 | .05 | .01 | .00 |
| AUG 16... | 10.2 | 58000 | B1600 | .45 | .09 | .11 | .02 |

B Results based upon colony counts outside the ideal range.

## 12013500 WILLAPA RIVER NEAR WILLAPA, WA

LOCATION.--Lat 46°39'04", long 123°39'05", in SW¼SW¼ sec.35, T.14 N., R.8 W., Pacific County, Hydrologic Unit 17100106, on right bank 2,150 ft (655 m) downstream from Mill Creek, 1.8 mi (2.9 km) southeast of Willapa, and at mile 17.8 (28.6 km).

DRAINAGE AREA.--130 mi$^2$ (337 km$^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August to October 1947, July 1948 to December 1954, water years 1955-56, 1958-59 (annual maximum), April 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3.57 ft (1.088 m) above mean sea level. Aug. 26, to Oct. 16, 1947, water-stage recorder at site 2,060 ft (628 m) upstream at different datum. July 28, 1948 to Dec. 2, 1954, water-stage recorder, water years 1955-56, 1958-59, nonrecording gage and Apr.1, 1961 to Apr. 14, 1974, water-stage recorder at site 2,000 ft (610 m) upstream at datum 2.12 ft (0.646 m) higher.

REMARKS.--Records good except those for period of no gage-height record Jan. 11 to Feb. 29, which are fair. Some diversion for domestic use and irrigation above station. No regulation.

AVERAGE DISCHARGE.--21 years (water years 1949-1954, 1962-1976), 675 ft$^3$/s (19.12 m$^3$/s), 70.51 in/yr (1,791 mm/yr), 489,000 acre-ft/yr (603 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,400 ft$^3$/s (323 m$^3$/s) Feb. 22, 1949, Dec. 13, 1966, from rating curve extended above 7,300 ft$^3$/s (207 m$^3$/s); maximum gage height, 24.22 ft (7.382 m) Feb. 22, 1949, site and datum then in use; minimum discharge, 13 ft$^3$/s (0.37 m$^3$/s) Aug. 20, 1967, minimum gage height, 2.87 ft (0.875 m) Aug. 18-21, 23-25, 31, Sept. 1, 1970, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft$^3$/s (142 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 30 | 0600 | 6,070 | 172 | 16.09 | 4.904 | Dec. 26 | 1600 | 8,180 | 232 | 18.52 | 5.645 |
| Nov. 15 | 0900 | 7,120 | 202 | 17.20 | 5.243 | Jan. 15 | unknown | 9,080 | 257 | 19.65 | 5.989 |
| Dec. 4 | 0700 | *10,500 | 297 | *21.49 | 6.550 | Mar. 24 | unknown | 6,290 | 178 | 16.16 | 4.926 |

Minimum discharge, 28 ft$^3$/s (0.79 m$^3$/s) Oct. 2, gage height, 3.26 ft (0.994 m).

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29 | 1380 | 6600 | 1150 | 510 | 1180 | 960 | 266 | 264 | 81 | 45 | 54 |
| 2 | 29 | 1090 | 8800 | 960 | 460 | 992 | 834 | 264 | 232 | 100 | 45 | 51 |
| 3 | 94 | 976 | 8260 | 841 | 420 | 848 | 732 | 254 | 208 | 81 | 45 | 51 |
| 4 | 214 | 846 | 9060 | 1410 | 390 | 743 | 647 | 236 | 183 | 83 | 43 | 50 |
| 5 | 236 | 769 | 3790 | 1550 | 360 | 653 | 593 | 234 | 172 | 89 | 43 | 50 |
| 6 | 366 | 1060 | 2110 | 1480 | 340 | 593 | 548 | 222 | 154 | 75 | 44 | 55 |
| 7 | 193 | 1500 | 1720 | 1600 | 320 | 551 | 506 | 206 | 144 | 73 | 46 | 60 |
| 8 | 187 | 1630 | 1460 | 1600 | 310 | 503 | 503 | 194 | 139 | 212 | 46 | 53 |
| 9 | 416 | 1540 | 1200 | 1370 | 320 | 473 | 452 | 185 | 134 | 165 | 48 | 48 |
| 10 | 411 | 1220 | 996 | 1780 | 310 | 494 | 419 | 187 | 128 | 129 | 48 | 44 |
| 11 | 293 | 984 | 851 | 4000 | 300 | 509 | 407 | 214 | 128 | 111 | 44 | 42 |
| 12 | 227 | 818 | 753 | 2800 | 1100 | 446 | 379 | 181 | 151 | 100 | 41 | 45 |
| 13 | 187 | 773 | 764 | 2000 | 800 | 434 | 357 | 169 | 136 | 93 | 41 | 55 |
| 14 | 169 | 2750 | 644 | 4000 | 850 | 455 | 349 | 160 | 121 | 86 | 68 | 80 |
| 15 | 270 | 5630 | 830 | 7000 | 1000 | 413 | 488 | 153 | 117 | 78 | 104 | 140 |
| 16 | 216 | 3160 | 760 | 4000 | 2500 | 399 | 455 | 147 | 161 | 72 | 185 | 95 |
| 17 | 710 | 2260 | 668 | 2400 | 3500 | 449 | 416 | 161 | 141 | 68 | 200 | 70 |
| 18 | 1110 | 1670 | 608 | 1600 | 3000 | 700 | 393 | 154 | 120 | 65 | 123 | 60 |
| 19 | 857 | 1270 | 557 | 1200 | 2000 | 1300 | 402 | 141 | 109 | 62 | 93 | 57 |
| 20 | 689 | 1010 | 512 | 1000 | 1400 | 1100 | 461 | 136 | 104 | 60 | 89 | 55 |
| 21 | 689 | 832 | 473 | 860 | 1100 | 1000 | 428 | 128 | 97 | 61 | 83 | 53 |
| 22 | 601 | 808 | 449 | 740 | 900 | 1100 | 390 | 123 | 93 | 59 | 73 | 52 |
| 23 | 487 | 1450 | 557 | 640 | 800 | 2500 | 371 | 123 | 90 | 57 | 67 | 54 |
| 24 | 418 | 1180 | 984 | 560 | 1000 | 4800 | 434 | 131 | 92 | 54 | 75 | 55 |
| 25 | 776 | 956 | 976 | 500 | 1100 | 3500 | 416 | 169 | 92 | 53 | 90 | 55 |
| 26 | 1140 | 1600 | 5810 | 450 | 1200 | 2460 | 379 | 136 | 86 | 49 | 85 | 55 |
| 27 | 1760 | 1530 | 3660 | 1100 | 1300 | 2300 | 349 | 126 | 81 | 47 | 72 | 52 |
| 28 | 1690 | 1240 | 1990 | 900 | 1500 | 2070 | 325 | 131 | 79 | 45 | 66 | 48 |
| 29 | 3230 | 1000 | 1650 | 750 | 1300 | 1640 | 305 | 144 | 71 | 43 | 62 | 46 |
| 30 | 4750 | 2530 | 1740 | 650 | --- | 1310 | 285 | 204 | 70 | 43 | 57 | 45 |
| 31 | 2150 | --- | 1420 | 570 | --- | 1200 | --- | 208 | --- | 45 | 55 | --- |
| TOTAL | 24594 | 45462 | 70652 | 51461 | 30390 | 37115 | 13983 | 5487 | 3897 | 2439 | 2226 | 1730 |
| MEAN | 793 | 1515 | 2279 | 1660 | 1048 | 1197 | 466 | 177 | 130 | 78.7 | 71.8 | 57.7 |
| MAX | 4750 | 5630 | 9060 | 7000 | 3500 | 4800 | 960 | 266 | 264 | 212 | 200 | 140 |
| MIN | 29 | 769 | 449 | 450 | 300 | 399 | 285 | 123 | 70 | 43 | 41 | 42 |
| CFSM | 6.10 | 11.7 | 17.5 | 12.8 | 8.06 | 9.21 | 3.58 | 1.36 | 1.00 | .61 | .55 | .44 |
| IN. | 7.04 | 13.01 | 20.22 | 14.73 | 8.70 | 10.62 | 4.00 | 1.57 | 1.12 | .70 | .64 | .50 |
| AC-FT | 48780 | 90170 | 140100 | 102100 | 60280 | 73620 | 27740 | 10880 | 7730 | 4840 | 4420 | 3430 |

CAL YR 1975 TOTAL 285443 MEAN 782 MAX 9060 MIN 24 CFSM 6.02 IN 81.68 AC-FT 566200
WTR YR 1976 TOTAL 289436 MEAN 791 MAX 9060 MIN 29 CFSM 6.08 IN 82.82 AC-FT 574100

## 12013500 WILLAPA RIVER NEAR WILLAPA, WA--Continued

### WATER-QUALITY RECORDS

LOCATION.--At Bullard Bridge, 0.5 mi (0.8 km) downstream from gaging station and Mill Creek.

PERIOD OF RECORD.--Water years 1966-1973, November 1975 to September 1976.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) |
|---|---|---|---|---|---|---|---|
| NOV | | | | | | | |
| 24... | 1210 | 1170 | 59 | 7.2 | 10.0 | 25 | 7 |
| MAR | | | | | | | |
| 16... | 1140 | 420 | 72 | 7.3 | 8.5 | 17 | 3 |
| JUN | | | | | | | |
| 14... | 1145 | 115 | 60 | 7.1 | 14.3 | 33 | 2 |
| AUG | | | | | | | |
| 16... | 1115 | 188 | 67 | 7.2 | 14.2 | 29 | 4 |

| DATE | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| NOV | | | | | | | |
| 24... | 11.9 | 1600 | 840 | .70 | .06 | .02 | .00 |
| MAR | | | | | | | |
| 16... | 12.2 | B120 | 82 | .46 | .05 | .01 | .00 |
| JUN | | | | | | | |
| 14... | 10.4 | 580 | 58 | .13 | .06 | .02 | .00 |
| AUG | | | | | | | |
| 16... | 10.0 | >3100 | B770 | .25 | .11 | .06 | .01 |

B Results based upon colony counts outside the ideal range.

## 1201[illegible]900 NORTH RIVER AT AMERICAN MILL ROAD NEAR RAYMOND, WA

LOCATION.--Lat 46°49'46", long 123°49'48", in SW¼NW¼ sec.32, T.16 N., R.9 W., Grays Harbor County, Hydrologic Unit 17100106, at American Mill Road crossing, 3.8 mi (6.1 km) upstream from gaging station and 11.0 mi (17.7 km) northwest of Raymond at mi 10.7 (17.2 km).

DRAINAGE AREA.--210 mi² (544 km²).

PERIOD OF RECORD.--Water years 1973, November 1975 to September 1976.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES.--July 1963 to September 1973 (see REMARKS).

REMARKS.--Prior to November 1975 published as 12017000 "North River near Raymond." Period of daily temperature records water years 1963-73, at site 3.8 mi (6.1 km) downstream.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTAN-TANEOUS DIS-CHARGE (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | COLOR (PLAT-INUM-COBALT UNITS) | TUR-BID-ITY (JTU) | DIS-SOLVED OXYGEN (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV<br>24... | 1030 | 2170 | 63 | 7.0 | 9.7 | 58 | 10 | 11.8 |
| MAR<br>16... | 0950 | 580 | 53 | 7.2 | 7.0 | 29 | 5 | 11.7 |
| JUN<br>14... | 1030 | 254 | 64 | 7.0 | 13.3 | 60 | 3 | 9.8 |
| AUG<br>16... | 1015 | 311 | 70 | 7.0 | 14.6 | 50 | 10 | 9.9 |

| DATE | IMME-DIATE COLI-FORM (COL. PER 100 ML) | FECAL COLI-FORM (COL. PER 100 ML) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| NOV<br>24... | 1400 | <20 | 11 | 0 | 2.6 | 1.0 | 5.0 | 2.5 | 17 |
| MAR<br>16... | B120 | 82 | 13 | 0 | 3.1 | 1.2 | 4.9 | .7 | 15 |
| JUN<br>14... | >190 | 84 | -- | -- | -- | -- | -- | -- | -- |
| AUG<br>16... | B1400 | 230 | -- | -- | -- | -- | -- | -- | -- |

B Results based upon colony counts outside the ideal range.

| DATE | ALKA-LINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV<br>24... | 14 | 2.7 | 6.3 | 4.7 | .49 | .09 | .03 | .00 |
| MAR<br>16... | 12 | 1.5 | 3.8 | 4.3 | .32 | .03 | .02 | .00 |
| JUN<br>14... | -- | -- | -- | -- | .08 | .07 | .02 | .00 |
| AUG<br>16... | -- | -- | -- | -- | .16 | .12 | .12 | .01 |

## 12017000 NORTH RIVER NEAR RAYMOND, WA

LOCATION.--Lat 46°48'27", long 123°50'58", in SE¼SW¼ sec.6, T.15 N., R.9 W., Grays Harbor County, Hydrologic Unit 17100106, on left bank 1.2 mi (1.8 km) upstream from lower Salmon Creek, 10 mi (16.1 km) northwest of Raymond, and at mile 6.9 (11.1 km).

DRAINAGE AREA.--219 $m^2$ (567 $km^2$).

PERIOD OF RECORD.--August 1927 to current year, chemical analyses October 1972 to September 1973, water temperatures July 1963 to September 1973.

REVISED RECORDS.--WSP 792: 1934. WSP 832: 1935-36. WSP 1286: 1952.

GAGE.--Water-stage recorder. Datum of gage is 7.39 ft (2.252 m) above mean sea level (Western Washington Electric Light and Power Co. bench mark).

REMARKS.--Records good except for those above 12,000 $ft^3/s$ (340 $m^3/s$) and those for periods of no gage-height record, which are fair. Some diversion for farm and domestic use. No regulation.

AVERAGE DISCHARGE.--49 years, 975 $ft^3/s$ (27.61 $m^3/s$), 60.46 in/yr (1,536 mm/yr), 706,400 acre-ft/yr (871 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 $ft^3/s$ (991 $m^3/s$) Dec. 10, 1933, gage height, 15.8 ft (4.82 m), from flood marks, from rating curve extended above 9,400 $ft^3/s$ (266 $m^3/s$); minimum, 21 $ft^3/s$ (0.59 $m^3/s$) Aug. 24, 1951, gage height, 1.01 ft (0.308 m).

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 5,000 $ft^3/s$ (142 $m^3/s$) and maximum (*):

| | | Discharge | | Gage height | | | | Discharge | | Gage height | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | ($ft^3/s$) | ($m^3/s$) | (ft) | (m) | Date | Time | ($ft^3/s$) | ($m^3/s$) | (ft) | (m) |
| Oct. 30 | 1800 | 5,740 | 163 | 7.20 | 2.195 | Jan. 11 | 2200 | 5,370 | 152 | 6.97 | 2.124 |
| Nov. 16 | 1000 | 6,150 | 174 | 7.44 | 2.268 | Jan. 15 | 1500 | 10,300 | 292 | 9.66 | 2.944 |
| Dec. 4 | 0300 | *18,800 | 532 | *13.30 | 4.054 | Feb. 17 | unknown | 5,420 | 153 | 7.00 | 2.134 |
| Dec. 27 | 0300 | 7,720 | 219 | 8.32 | 2.536 | | | | | | |

Minimum discharge, 50 $ft^3/s$ (1.42 $m^3/s$) Oct. 2, gage height, 1.38 ft (0.421 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 52 | 2450 | 7080 | 2250 | 1030 | 2040 | 1450 | 480 | 500 | 160 | 95 | 85 |
| 2 | 53 | 1850 | 13900 | 1770 | 910 | 1700 | 1200 | 450 | 420 | 140 | 90 | 80 |
| 3 | 105 | 1670 | 18100 | 1540 | 824 | 1410 | 1040 | 420 | 360 | 130 | 90 | 80 |
| 4 | 142 | 1440 | 16400 | 2860 | 758 | 1200 | 920 | 390 | 320 | 130 | 85 | 80 |
| 5 | 382 | 1230 | 11000 | 4090 | 700 | 1040 | 828 | 360 | 290 | 150 | 85 | 85 |
| 6 | 595 | 1240 | 5340 | 3510 | 652 | 919 | 764 | 330 | 260 | 130 | 90 | 100 |
| 7 | 458 | 1600 | 2900 | 3080 | 610 | 839 | 706 | 300 | 240 | 180 | 95 | 90 |
| 8 | 297 | 2260 | 2540 | 2940 | 586 | 781 | 684 | 280 | 220 | 437 | 100 | 85 |
| 9 | 420 | 2600 | 2160 | 2820 | 622 | 720 | 679 | 260 | 210 | 377 | 90 | 80 |
| 10 | 458 | 2180 | 1790 | 3260 | 620 | 700 | 617 | 280 | 200 | 278 | 85 | 75 |
| 11 | 396 | 1670 | 1500 | 4880 | 700 | 727 | 608 | 340 | 210 | 240 | 85 | 85 |
| 12 | 316 | 1330 | 1300 | 4800 | 2200 | 665 | 657 | 300 | 240 | 210 | 80 | 100 |
| 13 | 262 | 1190 | 1290 | 3400 | 1800 | 619 | 572 | 270 | 200 | 190 | 100 | 110 |
| 14 | 261 | 2670 | 1130 | 3900 | 2000 | 638 | 563 | 250 | 180 | 180 | 140 | 230 |
| 15 | 409 | 4980 | 1400 | 8800 | 2200 | 638 | 667 | 230 | 190 | 170 | 200 | 190 |
| 16 | 459 | 5810 | 1770 | 9800 | 3500 | 580 | 720 | 220 | 257 | 160 | 281 | 160 |
| 17 | 1080 | 4350 | 1490 | 6910 | 5000 | 602 | 667 | 250 | 308 | 150 | 276 | 140 |
| 18 | 2120 | 3160 | 1250 | 3470 | 4500 | 877 | 620 | 230 | 257 | 140 | 254 | 120 |
| 19 | 2030 | 2350 | 1090 | 2390 | 3800 | 1170 | 601 | 210 | 240 | 130 | 220 | 110 |
| 20 | 1720 | 1790 | 960 | 1860 | 2740 | 1520 | 665 | 200 | 220 | 120 | 190 | 100 |
| 21 | 1310 | 1410 | 861 | 1500 | 2050 | 1570 | 707 | 190 | 200 | 115 | 170 | 95 |
| 22 | 1150 | 1210 | 799 | 1310 | 1640 | 1570 | 640 | 180 | 190 | 110 | 160 | 95 |
| 23 | 902 | 1630 | 912 | 1250 | 1420 | 1750 | 612 | 180 | 180 | 110 | 140 | 90 |
| 24 | 725 | 2110 | 1640 | 1050 | 1540 | 3410 | 699 | 200 | 190 | 110 | 120 | 85 |
| 25 | 1020 | 1810 | 2360 | 932 | 1970 | 4750 | 776 | 250 | 180 | 105 | 120 | 80 |
| 26 | 1950 | 2240 | 6510 | 872 | 2180 | 3520 | 720 | 200 | 170 | 105 | 130 | 76 |
| 27 | 3510 | 2710 | 7250 | 1980 | 2220 | 2930 | 662 | 180 | 160 | 100 | 110 | 74 |
| 28 | 3280 | 2130 | 4650 | 2590 | 2350 | 2900 | 610 | 180 | 150 | 95 | 100 | 71 |
| 29 | 3980 | 1650 | 3080 | 1820 | 2270 | 2500 | 562 | 200 | 140 | 95 | 95 | 67 |
| 30 | 5550 | 2430 | 3240 | 1430 | --- | 2030 | 520 | 270 | 130 | 95 | 90 | 67 |
| 31 | 4250 | --- | 2920 | 1190 | --- | 1720 | --- | 370 | --- | 95 | 90 | --- |
| TOTAL | 39642 | 67150 | 128612 | 94254 | 53392 | 48035 | 21736 | 8450 | 7012 | 4937 | 4056 | 2985 |
| MEAN | 1279 | 2238 | 4149 | 3040 | 1841 | 1550 | 725 | 273 | 234 | 159 | 131 | 99.5 |
| MAX | 5550 | 5810 | 18100 | 9800 | 5000 | 4750 | 1450 | 480 | 500 | 437 | 281 | 230 |
| MIN | 52 | 1190 | 799 | 872 | 586 | 580 | 520 | 180 | 130 | 95 | 80 | 67 |
| CFSM | 5.84 | 10.2 | 18.9 | 13.9 | 8.41 | 7.08 | 3.31 | 1.25 | 1.07 | .73 | .60 | .45 |
| IN. | 6.73 | 11.41 | 21.85 | 16.01 | 9.07 | 8.16 | 3.69 | 1.44 | 1.19 | .84 | .69 | .51 |
| AC-FT | 78630 | 133200 | 255100 | 187000 | 105900 | 95280 | 43110 | 16760 | 13910 | 9790 | 8050 | 5920 |

CAL YR 1975 TOTAL 442743 MEAN 1213 MAX 18100 MIN 46 CFSM 5.54 IN 75.21 AC-FT 878200
WTR YR 1976 TOTAL 480261 MEAN 1312 MAX 18100 MIN 52 CFSM 5.99 IN 81.58 AC-FT 952600

NOTE.--No gage-height record Apr. 30 to June 15, July 11 to Aug. 15 and Aug. 19 to Sept. 23.

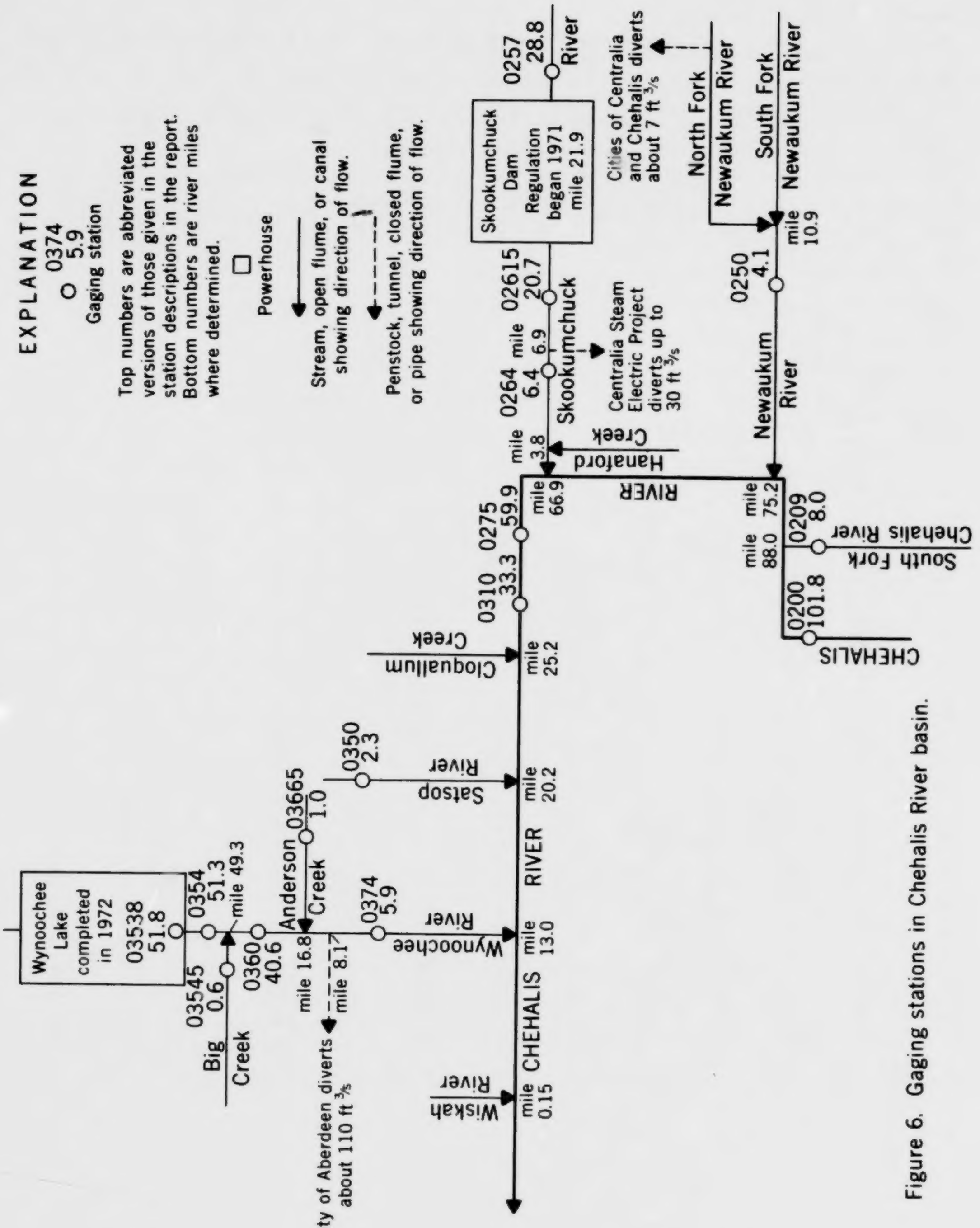
EXPLANATION
0374
5.9
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Skookumchuck Dam Regulation began 1971 mile 21.9
0257 28.8
River
02615 20.7
mile 6.9
0264 6.4
Skookumchuck
Centralia Steam Electric Project diverts up to 30 ft³/s
Cities of Centralia and Chehalis diverts about 7 ft³/s
North Fork Newaukum River
South Fork Newaukum River
mile 10.9
0250 4.1
Newaukum River
mile 3.8
Hanaford Creek
mile 66.9
mile 75.2
RIVER
0275 59.9
0310 33.3
mile 88.0
0209 8.0
South Fork Chehalis River
0200 101.8
CHEHALIS
Cloquallum Creek
mile 25.2
0350 2.3
Satsop River
mile 20.2
03665 1.0
Anderson Creek
mile 16.8
mile 8.17
City of Aberdeen diverts about 110 ft³/s
Wynoochee Lake completed in 1972
03538 51.8
0354 51.3
mile 49.3
03545 0.6
Big Creek
0360 40.6
0374 5.9
Wynoochee River
mile 13.0
RIVER
CHEHALIS
Wiskah River
mile 0.15

Figure 6. Gaging stations in Chehalis River basin.

## 12020000 CHEHALIS RIVER NEAR DOTY, WA

LOCATION.--Lat 46°37'03", long 123°16'35", in NE¼NW¼ sec.14, T.13 N., R.5 W., Lewis County, Hydrologic Unit 17100103, on right bank 1.3 mi (2.1 km) south of Doty, 1.6 mi (2.6 km) upstream from Elk Creek, 3.4 mi (5.5 km) north of Pe Ell, and at mile 101.8 (163.8 km).

DRAINAGE AREA.--113 mi² (293 km²).

PERIOD OF RECORD.--October 1939 to current year. Chemical analyses July 1959 to September 1970, sediment records October 1961 to December 1964 (partial-record station).

REVISED RECORDS.--WSP 1316: 1943(M). WSP 1446: 1946(M). WRD Wash. 1972: 1945(M).

GAGE.--Water-stage recorder. Datum of gage is 302.1 ft (92.08 m) above mean sea level (river-profile survey). Prior to Oct. 1, 1961, nonrecording gage and crest-stage gage at site 100 ft (30 m) downstream at same datum.

REMARKS.--Records excellent. No regulation or diversion above station.

AVERAGE DISCHARGE.--37 years, 589 ft³/s (16.68 m³/s), 70.78 in/yr (1,798 mm/yr), 426,700 acre-ft/yr (526 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 ft³/s (646 m³/s) Jan. 20, 1972, gage height, 18.36 ft (5.596 m) from rating curve extended above 7,400 ft³/s (210 m³/s) on basis of slope-area measurement of peak flow; minimum, 18 ft³/s (0.51 m³/s) Oct. 14, 1952, Aug. 25-28, 1958, Sept. 4, 5, 1972; minimum gage height, 0.72 ft (0.219 m) Sept. 11, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,800 ft³/s (193 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 4 | 0400 | *17,400 | 493 | *16.10 | 4.907 | Dec. 26 | 1800 | 6,830 | 193 | 9.73 | 2.966 |

Minimum discharge, 32 ft³/s (0.91 m³/s) Oct. 1, 2, Sept. 11; minimum gage height, 0.72 ft (0.219 m) Sept. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 33 | 1030 | 4040 | 1060 | 459 | 845 | 940 | 272 | 318 | 102 | 50 | 39 |
| 2 | 32 | 848 | 5880 | 870 | 414 | 710 | 790 | 269 | 279 | 92 | 50 | 37 |
| 3 | 60 | 784 | 7720 | 755 | 382 | 612 | 690 | 251 | 244 | 80 | 48 | 37 |
| 4 | 187 | 669 | 10300 | 1400 | 346 | 535 | 630 | 234 | 217 | 82 | 46 | 37 |
| 5 | 131 | 575 | 3390 | 1660 | 314 | 477 | 598 | 227 | 199 | 85 | 46 | 37 |
| 6 | 219 | 869 | 1920 | 1440 | 294 | 442 | 571 | 214 | 178 | 74 | 48 | 43 |
| 7 | 134 | 1470 | 1660 | 1350 | 279 | 434 | 549 | 202 | 166 | 78 | 50 | 40 |
| 8 | 134 | 1590 | 1550 | 1870 | 286 | 402 | 603 | 190 | 157 | 248 | 50 | 36 |
| 9 | 418 | 1410 | 1270 | 1790 | 290 | 426 | 544 | 181 | 151 | 187 | 48 | 35 |
| 10 | 362 | 1070 | 1010 | 2350 | 262 | 535 | 490 | 181 | 145 | 145 | 46 | 33 |
| 11 | 265 | 853 | 820 | 3840 | 294 | 612 | 517 | 196 | 139 | 127 | 43 | 33 |
| 12 | 204 | 738 | 720 | 2340 | 1050 | 531 | 477 | 172 | 151 | 117 | 42 | 42 |
| 13 | 167 | 688 | 655 | 1630 | 795 | 490 | 454 | 163 | 136 | 112 | 43 | 48 |
| 14 | 148 | 2320 | 567 | 4170 | 892 | 499 | 434 | 154 | 122 | 102 | 58 | 107 |
| 15 | 190 | 4130 | 700 | 5730 | 982 | 477 | 508 | 151 | 127 | 92 | 76 | 102 |
| 16 | 167 | 2500 | 725 | 3400 | 2540 | 549 | 481 | 145 | 169 | 85 | 95 | 70 |
| 17 | 314 | 1770 | 655 | 1980 | 2930 | 830 | 459 | 151 | 154 | 80 | 80 | 58 |
| 18 | 649 | 1290 | 589 | 1370 | 2580 | 1320 | 434 | 139 | 139 | 76 | 64 | 51 |
| 19 | 566 | 991 | 540 | 1050 | 1650 | 1200 | 422 | 133 | 127 | 72 | 57 | 48 |
| 20 | 495 | 800 | 495 | 840 | 1200 | 1160 | 490 | 127 | 122 | 70 | 57 | 45 |
| 21 | 453 | 679 | 454 | 700 | 934 | 1080 | 450 | 125 | 115 | 70 | 55 | 43 |
| 22 | 404 | 743 | 439 | 635 | 765 | 1260 | 410 | 120 | 112 | 68 | 48 | 43 |
| 23 | 334 | 1830 | 630 | 558 | 675 | 1270 | 382 | 122 | 107 | 64 | 45 | 43 |
| 24 | 291 | 1650 | 1250 | 486 | 934 | 4430 | 434 | 127 | 110 | 62 | 48 | 42 |
| 25 | 679 | 1140 | 1220 | 438 | 1060 | 3240 | 418 | 148 | 105 | 58 | 57 | 40 |
| 26 | 1250 | 1570 | 4940 | 406 | 1060 | 2080 | 386 | 125 | 97 | 55 | 58 | 38 |
| 27 | 1710 | 1480 | 3340 | 1100 | 1320 | 1870 | 358 | 125 | 92 | 53 | 50 | 37 |
| 28 | 1790 | 1140 | 1820 | 898 | 1320 | 1710 | 338 | 122 | 87 | 51 | 46 | 35 |
| 29 | 3710 | 902 | 1490 | 705 | 1050 | 1390 | 314 | 136 | 82 | 50 | 45 | 34 |
| 30 | 3750 | 1710 | 1650 | 589 | --- | 1180 | 294 | 193 | 78 | 51 | 42 | 34 |
| 31 | 1680 | --- | 1340 | 517 | --- | 1180 | --- | 237 | --- | 51 | 40 | --- |
| TOTAL | 20926 | 39239 | 63778 | 47927 | 27357 | 33776 | 14865 | 5332 | 4425 | 2739 | 1631 | 1367 |
| MEAN | 675 | 1308 | 2057 | 1546 | 943 | 1090 | 496 | 172 | 148 | 88.4 | 52.6 | 45.6 |
| MAX | 3750 | 4130 | 10300 | 5730 | 2930 | 4430 | 940 | 272 | 318 | 248 | 95 | 107 |
| MIN | 32 | 575 | 438 | 406 | 262 | 402 | 294 | 120 | 78 | 50 | 40 | 33 |
| CFSM | 5.97 | 11.6 | 18.2 | 13.7 | 8.35 | 9.65 | 4.39 | 1.52 | 1.31 | .78 | .47 | .40 |
| IN. | 6.89 | 12.92 | 21.00 | 15.78 | 9.01 | 11.12 | 4.89 | 1.76 | 1.46 | .90 | .54 | .45 |
| AC-FT | 41510 | 77830 | 126500 | 95060 | 54260 | 66990 | 29480 | 10580 | 8780 | 5430 | 3240 | 2710 |

CAL YR 1975 TOTAL 259058 MEAN 710 MAX 10300 MIN 29 CFSM 6.28 IN 85.28 AC-FT 513800
WTR YR 1976 TOTAL 263362 MEAN 720 MAX 10300 MIN 32 CFSM 6.37 IN 86.70 AC-FT 522400

## 12020900 SOUTH FORK CHEHALIS RIVER NEAR BOISTFORT, WA

LOCATION.--Lat 46°31'38", long 123°06'58", in SE¼NE¼ sec.13, T.12 N., R.4 W., Lewis County, Hydrologic Unit 17100103, on left bank 1.0 mi (1.6 km) downstream from Neiman Creek, 1.0 mi (1.6 km) southeast of Boistfort, and 2.7 mi (4.3 km) upstream from Stillman Creek.

DRAINAGE AREA.--44.9 mi² (116.3 km²).

PERIOD OF RECORD.--August 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 280 ft (85 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record, which are fair. Many small diversions for irrigation and domestic use above station. No regulation.

AVERAGE DISCHARGE.--11 years, 192 ft³/s (5.437 m³/s), 58.07 in/yr (1,475 mm/yr), 139,100 acre-ft/yr (172 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 6,200 ft³/s (176 m³/s) Dec. 4, 1975, gage height, 14.73 ft (4.490 m), from rating curve extended above 3,000 ft³/s (85.0 m³/s) on basis of slope-area measurement at gage height 13.86 ft (4.225 m); minimum, 0.10 ft³/s (0.003 m³/s) Sept. 1-2, 1967, gage height, 2.36 ft (0.719 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 1,900 ft³/s (53.8 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 4 | 0800 | *a6,200 | 176 | *14.73 | 4.490 | Jan. 14 | 1800 | 2,360 | 66.8 | 10.77 | 3.283 |
| Dec. 26 | 1900 | 2,710 | 76.7 | 11.65 | 3.551 | Mar. 24 | unknown | unknown | ---- | unknown | ----- |

a From rating curve extended as explained above.

Minimum discharge, 4.8 ft³/s (0.136 m³/s) Oct. 1, 2, gage height, 2.71 ft (0.826 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.1 | 280 | 825 | 387 | 184 | 435 | 310 | 85 | 87 | 20 | 6.9 | 10 |
| 2 | 4.8 | 218 | 1290 | 325 | 169 | 350 | 280 | 90 | 72 | 24 | 6.3 | 10 |
| 3 | 6.0 | 186 | 2700 | 265 | 155 | 292 | 250 | 84 | 64 | 19 | 7.3 | 10 |
| 4 | 25 | 159 | 4430 | 430 | 142 | 250 | 220 | 77 | 60 | 18 | 7.3 | 9.6 |
| 5 | 23 | 136 | 1410 | 577 | 129 | 220 | 200 | 74 | 54 | 19 | 6.6 | 9.6 |
| 6 | 26 | 167 | 757 | 508 | 119 | 195 | 190 | 69 | 48 | 16 | 6.6 | 10 |
| 7 | 21 | 415 | 655 | 475 | 112 | 178 | 180 | 66 | 45 | 15 | 13 | 11 |
| 8 | 25 | 514 | 598 | 556 | 111 | 163 | 200 | 62 | 44 | 45 | 17 | 10 |
| 9 | 33 | 487 | 487 | 583 | 114 | 155 | 180 | 60 | 43 | 39 | 13 | 9.6 |
| 10 | 38 | 370 | 400 | 649 | 104 | 157 | 160 | 59 | 40 | 27 | 11 | 8.4 |
| 11 | 30 | 282 | 335 | 1310 | 106 | 148 | 160 | 63 | 38 | 24 | 9.6 | 8.0 |
| 12 | 24 | 233 | 289 | 979 | 345 | 157 | 150 | 59 | 41 | 21 | 8.0 | 8.8 |
| 13 | 19 | 199 | 266 | 685 | 285 | 176 | 140 | 54 | 37 | 20 | 7.3 | 11 |
| 14 | 17 | 340 | 226 | 1650 | 305 | 161 | 130 | 52 | 35 | 18 | 11 | 14 |
| 15 | 18 | 715 | 248 | 2080 | 365 | 160 | 172 | 50 | 33 | 16 | 27 | 28 |
| 16 | 21 | 649 | 252 | 1350 | 909 | 200 | 159 | 49 | 39 | 14 | 36 | 17 |
| 17 | 26 | 586 | 235 | 811 | 1070 | 350 | 148 | 49 | 35 | 13 | 30 | 13 |
| 18 | 58 | 450 | 218 | 568 | 1120 | 500 | 140 | 47 | 29 | 13 | 21 | 11 |
| 19 | 54 | 357 | 201 | 430 | 724 | 450 | 130 | 45 | 26 | 12 | 17 | 11 |
| 20 | 70 | 292 | 186 | 347 | 505 | 430 | 142 | 45 | 25 | 9.6 | 17 | 10 |
| 21 | 59 | 241 | 174 | 292 | 392 | 400 | 129 | 42 | 24 | 10 | 18 | 9.6 |
| 22 | 60 | 233 | 169 | 257 | 320 | 500 | 121 | 38 | 23 | 10 | 14 | 9.6 |
| 23 | 50 | 402 | 228 | 226 | 275 | 500 | 114 | 38 | 22 | 10 | 13 | 10 |
| 24 | 41 | 417 | 402 | 197 | 352 | 1800 | 132 | 44 | 22 | 9.2 | 14 | 10 |
| 25 | 68 | 337 | 445 | 174 | 466 | 1000 | 125 | 50 | 21 | 8.0 | 17 | 10 |
| 26 | 191 | 422 | 1830 | 161 | 553 | 800 | 114 | 42 | 19 | 8.4 | 19 | 9.6 |
| 27 | 220 | 400 | 1540 | 367 | 730 | 750 | 107 | 40 | 17 | 8.4 | 17 | 9.2 |
| 28 | 299 | 335 | 787 | 330 | 745 | 600 | 101 | 39 | 16 | 8.0 | 14 | 8.4 |
| 29 | 682 | 280 | 571 | 266 | 568 | 540 | 94 | 44 | 14 | 6.9 | 14 | 8.4 |
| 30 | 835 | 417 | 562 | 233 | --- | 450 | 88 | 67 | 13 | 7.3 | 12 | 8.4 |
| 31 | 430 | --- | 469 | 207 | --- | 370 | --- | 66 | --- | 7.3 | 11 | --- |
| TOTAL | 3478.9 | 10519 | 23185 | 17695 | 11474 | 12837 | 4766 | 1749 | 1085 | 496.1 | 441.9 | 323.2 |
| MEAN | 112 | 351 | 748 | 571 | 396 | 414 | 159 | 56.4 | 36.2 | 16.0 | 14.3 | 10.8 |
| MAX | 835 | 715 | 4430 | 2080 | 1120 | 1800 | 310 | 90 | 87 | 45 | 36 | 28 |
| MIN | 4.8 | 136 | 169 | 161 | 104 | 148 | 88 | 38 | 13 | 6.9 | 6.3 | 8.0 |
| CFSM | 2.49 | 7.82 | 16.7 | 12.7 | 8.82 | 9.22 | 3.54 | 1.26 | .81 | .36 | .32 | .24 |
| IN. | 2.88 | 8.71 | 19.21 | 14.66 | 9.51 | 10.64 | 3.95 | 1.45 | .90 | .41 | .37 | .27 |
| AC-FT | 6900 | 20860 | 45990 | 35100 | 22760 | 25460 | 9450 | 3470 | 2150 | 984 | 877 | 641 |

CAL YR 1975 TOTAL 80894.0 MEAN 222 MAX 4430 MIN 1.3 CFSM 4.94 IN 67.02 AC-FT 160500
WTR YR 1976 TOTAL 88050.1 MEAN 241 MAX 4430 MIN 4.8 CFSM 5.37 IN 72.95 AC-FT 174600

NOTE.--No gage-height record Mar. 15 to Apr. 14.

## 12025000 NEWAUKUM RIVER NEAR CHEHALIS, WA

LOCATION.--Lat 46°37'13", long 122°56'38", in SW¼SW¼ sec.9, T.13 N., R.2 W., Lewis County, Hydrologic Unit 17100103, on left bank at highway bridge 3.0 mi (4.8 km) southeast of Chehalis, and at mile 4.1 (6.6 km).

DRAINAGE AREA.--155 mi² (401 km²).

PERIOD OF RECORD.-March 1929 to September 1931, July 1942 to current year. Chemical analyses July 1960 to September 1970, October 1974 to September 1975, sediment records October 1961 to June 1965 (partial-record station).

REVISED RECORDS.--WSP 1012: 1943. WSP 1316: 1929-30(M), 1950(M). WSP 1716: Drainage area. WSP 1932: 1931(M), 1945-49, 1954(M), 1956(P), 1958(M), 1959-60.

GAGE.--Water-stage recorder. Altitude of gage is 190 ft (58 m), from topographic map. Prior to Oct. 1, 1929, nonrecording gage at same site at datum 1.0 ft (0.30 m) higher. Oct. 1, 1929, to July 5, 1962, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good except those for periods of no gage-height record, which are fair. Cities of Chehalis and Centralia divert about 7 ft³/s (0.20 m³/s) from North Fork Newaukum River for municipal use. No regulation.

AVERAGE DISCHARGE.--36 years (1929-31, 1942-76), 516 ft³/s (14.61 m³/s), 373,800 acre-ft/yr (461 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,770 ft³/s (277 m³/s) Jan. 21, 1972, gage height, 12.12 ft (3.694 m); maximum gage height, 13.62 ft (4.151 m) Dec. 9, 1953; minimum discharge, 12 ft³/s (0.34 m³/s) Sept. 13, 14, 1949, Aug. 29, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

| Date | Time | Discharge | | Gage height | | Date | Time | Discharge | | Gage height | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (ft³/s) | (m³/s) | (ft) | (m) | | | (ft³/s) | (m³/s) | (ft) | (m) |
| Dec. 4 | 1200 | *8,020 | 227 | *10.85 | 3.307 | Jan. 15 | 1900 | 7,560 | 214 | 10.47 | 3.191 |
| Dec. 26 | unknown | unknown | --- | unknown | --- | | | | | | |

Minimum discharge, 36 ft³/s (1.02 m³/s) Oct. 2, gage height, 0.97 ft (0.296 m).

DISCHARGE, IN CUBIC FEET PER SECOND--------------------------------------------

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 38 | 789 | 4150 | 1200 | 480 | 1100 | 828 | 388 | 268 | 108 | 55 | 66 |
| 2 | 37 | 627 | 4640 | 1000 | 440 | 950 | 696 | 726 | 308 | 120 | 57 | 65 |
| 3 | 42 | 586 | 6450 | 900 | 410 | 800 | 610 | 595 | 268 | 99 | 59 | 63 |
| 4 | 88 | 481 | 7020 | 1300 | 360 | 680 | 540 | 487 | 221 | 99 | 55 | 61 |
| 5 | 79 | 409 | 3220 | 1800 | 360 | 560 | 505 | 469 | 194 | 95 | 54 | 61 |
| 6 | 118 | 471 | 1950 | 1600 | 340 | 480 | 492 | 412 | 176 | 86 | 59 | 74 |
| 7 | 77 | 1050 | 2610 | 1500 | 320 | 430 | 460 | 372 | 162 | 82 | 93 | 68 |
| 8 | 67 | 1690 | 2910 | 1700 | 300 | 395 | 540 | 344 | 157 | 251 | 115 | 61 |
| 9 | 79 | 1450 | 1890 | 1900 | 290 | 376 | 575 | 320 | 155 | 191 | 89 | 57 |
| 10 | 101 | 977 | 1390 | 2200 | 290 | 380 | 478 | 304 | 147 | 145 | 72 | 55 |
| 11 | 100 | 739 | 1070 | 3500 | 290 | 416 | 660 | 316 | 145 | 127 | 65 | 54 |
| 12 | 79 | 613 | 870 | 2500 | 800 | 360 | 585 | 286 | 160 | 118 | 59 | 55 |
| 13 | 70 | 536 | 780 | 2000 | 700 | 356 | 505 | 254 | 150 | 108 | 59 | 63 |
| 14 | 67 | 798 | 660 | 3500 | 800 | 420 | 465 | 230 | 137 | 99 | 70 | 93 |
| 15 | 85 | 1190 | 732 | 6400 | 1000 | 372 | 762 | 215 | 132 | 91 | 84 | 137 |
| 16 | 91 | 1470 | 738 | 4240 | 1500 | 352 | 645 | 203 | 209 | 84 | 155 | 93 |
| 17 | 150 | 1480 | 655 | 2280 | 2500 | 384 | 570 | 200 | 215 | 82 | 111 | 76 |
| 18 | 203 | 1010 | 595 | 1600 | 2700 | 565 | 575 | 188 | 170 | 80 | 86 | 72 |
| 19 | 224 | 768 | 545 | 1230 | 1900 | 750 | 515 | 179 | 147 | 76 | 76 | 66 |
| 20 | 243 | 627 | 490 | 977 | 1400 | 828 | 666 | 182 | 137 | 76 | 106 | 63 |
| 21 | 264 | 532 | 460 | 748 | 1000 | 816 | 635 | 167 | 127 | 80 | 106 | 59 |
| 22 | 271 | 522 | 500 | 798 | 800 | 1200 | 555 | 160 | 120 | 74 | 89 | 59 |
| 23 | 204 | 1120 | 700 | 768 | 700 | 1240 | 501 | 157 | 118 | 70 | 82 | 61 |
| 24 | 165 | 1230 | 1100 | 630 | 790 | 2530 | 690 | 162 | 118 | 66 | 78 | 61 |
| 25 | 199 | 962 | 1500 | 565 | 1000 | 2270 | 655 | 182 | 115 | 65 | 95 | 57 |
| 26 | 491 | 1280 | 5000 | 515 | 1300 | 1570 | 630 | 160 | 108 | 63 | 106 | 55 |
| 27 | 449 | 1120 | 4500 | 1030 | 1700 | 1610 | 540 | 170 | 102 | 63 | 89 | 55 |
| 28 | 646 | 846 | 2500 | 921 | 1600 | 1550 | 478 | 185 | 97 | 59 | 80 | 54 |
| 29 | 1850 | 675 | 1800 | 726 | 1400 | 1240 | 429 | 198 | 91 | 57 | 74 | 54 |
| 30 | 2400 | 1310 | 1700 | 600 | --- | 977 | 400 | 261 | 91 | 57 | 68 | 54 |
| 31 | 1270 | --- | 1400 | 525 | --- | 1030 | --- | 240 | --- | 57 | 68 | --- |
| TOTAL | 10306 | 27358 | 64515 | 51203 | 27690 | 26987 | 17185 | 8702 | 4745 | 2928 | 2514 | 1972 |
| MEAN | 332 | 912 | 2081 | 1652 | 955 | 871 | 573 | 281 | 158 | 94.5 | 81.1 | 65.7 |
| MAX | 2400 | 1690 | 7020 | 6400 | 2700 | 2530 | 828 | 726 | 308 | 251 | 155 | 137 |
| MIN | 37 | 409 | 460 | 515 | 290 | 352 | 400 | 157 | 91 | 57 | 54 | 54 |
| CFSM | 2.14 | 5.88 | 13.4 | 10.7 | 6.16 | 5.62 | 3.70 | 1.81 | 1.02 | .61 | .52 | .42 |
| IN. | 2.47 | 6.57 | 15.48 | 12.29 | 6.65 | 6.48 | 4.12 | 2.09 | 1.14 | .70 | .60 | .47 |
| AC-FT | 20440 | 54260 | 128000 | 101600 | 54920 | 53530 | 34090 | 17260 | 9410 | 5810 | 4990 | 3910 |

CAL YR 1975 TOTAL 232355 MEAN 637 MAX 7020 MIN 32 CFSM 4.11 IN 55.76 AC-FT 460900
WTR YR 1976 TOTAL 246105 MEAN 672 MAX 7020 MIN 37 CFSM 4.34 IN 59.06 AC-FT 488100

NOTE.--No gage-height record Dec. 20 to Jan. 14 and Feb. 1 to Mar. 7.

## 12025700 SKOOKUMCHUCK RIVER NEAR VAIL, WA

LOCATION.--Lat 46°46'22", long 122°35'34", in SW¼NW¼ sec.20, T.15 N., R.2 E., Thurston County, Hydrologic Unit 17100103, on right bank about 150 ft (46 m) downstream from logging bridge, 0.4 mi (0.6 km) downstream from Hospital Creek, 5.8 mi (9.3 km) southeast of Vail, and at mile 28.8 (46.3 km).

DRAINAGE AREA.--40.0 $mi^2$ (103.6 $km^2$).

PERIOD OF RECORD.--October 1967 to current year.

REVISED RECORDS.--WDR WA-75-1: 1974.

GAGE.--Water-stage recorder. Altitude of gage is 710 ft (216 m), from topographic map.

REMARKS. Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--9 years, 224 $ft^3/s$ (6.344 $m^3/s$), 76.05 in/yr (1,932 mm/yr), 162,300 acre-ft/yr (200 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,900 $ft^3/s$ (195 $m^3/s$) Jan. 20, 1972, gage height, 10.93 ft (3.331 m); minimum, 18 $ft^3/s$ (0.51 $m^3/s$) part or all of each day Aug. 22-24, 26-31, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,250 $ft^3/s$ (35.4 $m^3/s$) and maximum (*).

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 29 | 1700 | 1,760 | 49.8 | 7.12 | 2.170 | Jan. 15 | 0600 | 2,890 | 81.8 | 8.16 | 2.487 |
| Dec. 4 | 0500 | *3,620 | 103 | *8.73 | 2.661 | | | | | | |

Minimum discharge, 21 $ft^3/s$ (0.59 $m^3/s$) Oct. 1, 2, minimum gage height, 3.27 ft (0.997 m) Sept. 27-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 22 | 386 | 1740 | 351 | 200 | 314 | 311 | 314 | 147 | 57 | 35 | 34 |
| 2 | 22 | 326 | 2250 | 296 | 165 | 275 | 275 | 398 | 137 | 47 | 34 | 33 |
| 3 | 35 | 302 | 3000 | 269 | 172 | 242 | 248 | 299 | 119 | 46 | 34 | 32 |
| 4 | 70 | 245 | 2470 | 502 | 157 | 218 | 236 | 254 | 104 | 45 | 33 | 31 |
| 5 | 70 | 212 | 1080 | 610 | 145 | 200 | 251 | 233 | 92 | 41 | 34 | 34 |
| 6 | 74 | 284 | 685 | 440 | 137 | 187 | 275 | 210 | 87 | 39 | 38 | 36 |
| 7 | 49 | 510 | 715 | 466 | 133 | 177 | 269 | 197 | 83 | 47 | 51 | 32 |
| 8 | 45 | 580 | 765 | 570 | 133 | 165 | 296 | 207 | 78 | 131 | 51 | 30 |
| 9 | 67 | 450 | 590 | 526 | 129 | 160 | 296 | 210 | 75 | 83 | 38 | 30 |
| 10 | 65 | 338 | 466 | 558 | 119 | 182 | 266 | 218 | 72 | 72 | 35 | 29 |
| 11 | 56 | 278 | 386 | 858 | 127 | 197 | 351 | 190 | 74 | 66 | 33 | 29 |
| 12 | 49 | 251 | 337 | 630 | 245 | 182 | 296 | 157 | 78 | 64 | 33 | 34 |
| 13 | 45 | 239 | 299 | 478 | 239 | 175 | 254 | 151 | 68 | 59 | 33 | 31 |
| 14 | 42 | 670 | 260 | 1630 | 287 | 170 | 275 | 139 | 64 | 55 | 37 | 52 |
| 15 | 59 | 806 | 290 | 2410 | 281 | 162 | 281 | 127 | 78 | 52 | 65 | 47 |
| 16 | 56 | 705 | 269 | 1200 | 740 | 170 | 242 | 125 | 99 | 50 | 58 | 37 |
| 17 | 83 | 520 | 245 | 775 | 760 | 236 | 225 | 121 | 83 | 49 | 46 | 34 |
| 18 | 134 | 370 | 227 | 558 | 745 | 454 | 212 | 110 | 75 | 46 | 40 | 33 |
| 19 | 168 | 294 | 218 | 434 | 518 | 426 | 212 | 106 | 71 | 45 | 40 | 32 |
| 20 | 164 | 236 | 207 | 365 | 390 | 402 | 269 | 101 | 65 | 46 | 55 | 30 |
| 21 | 160 | 205 | 197 | 317 | 334 | 383 | 254 | 95 | 62 | 44 | 45 | 30 |
| 22 | 136 | 266 | 203 | 299 | 296 | 466 | 230 | 94 | 59 | 43 | 41 | 31 |
| 23 | 114 | 752 | 266 | 269 | 308 | 454 | 222 | 90 | 57 | 41 | 39 | 30 |
| 24 | 100 | 655 | 498 | 239 | 386 | 936 | 327 | 104 | 57 | 39 | 39 | 30 |
| 25 | 192 | 478 | 474 | 218 | 426 | 815 | 311 | 101 | 52 | 39 | 58 | 29 |
| 26 | 269 | 565 | 795 | 200 | 394 | 570 | 275 | 90 | 50 | 38 | 50 | 28 |
| 27 | 366 | 474 | 720 | 348 | 498 | 482 | 248 | 104 | 49 | 37 | 43 | 28 |
| 28 | 560 | 362 | 506 | 314 | 466 | 470 | 230 | 94 | 46 | 36 | 39 | 28 |
| 29 | 1410 | 290 | 482 | 275 | 369 | 340 | 225 | 117 | 46 | 36 | 37 | 27 |
| 30 | 1180 | 670 | 530 | 242 | --- | 348 | 245 | 129 | 46 | 36 | 36 | 27 |
| 31 | 615 | --- | 430 | 218 | --- | 355 | --- | 149 | --- | 35 | 35 | --- |
| TOTAL | 6477 | 12719 | 21600 | 16915 | 9319 | 10363 | 7907 | 5034 | 2273 | 1564 | 1285 | 968 |
| MEAN | 209 | 424 | 697 | 546 | 321 | 334 | 264 | 162 | 75.8 | 50.5 | 41.5 | 32.3 |
| MAX | 1410 | 806 | 3000 | 2410 | 760 | 936 | 351 | 398 | 147 | 131 | 65 | 52 |
| MIN | 22 | 205 | 197 | 200 | 119 | 160 | 212 | 90 | 46 | 35 | 33 | 27 |
| CFSM | 5.23 | 10.6 | 17.4 | 13.7 | 8.03 | 8.35 | 6.60 | 4.05 | 1.90 | 1.26 | 1.04 | .81 |
| IN. | 6.02 | 11.83 | 20.09 | 15.73 | 8.67 | 9.64 | 7.35 | 4.68 | 2.11 | 1.45 | 1.20 | .90 |
| AC-FT | 12850 | 25230 | 42840 | 33550 | 18480 | 20560 | 15680 | 9980 | 4510 | 3100 | 2550 | 1920 |

CAL YR 1975 TOTAL 90829 MEAN 249 MAX 3000 MIN 22 CFSM 6.23 IN 84.47 AC-FT 180200
WTR YR 1976 TOTAL 96424 MEAN 263 MAX 3000 MIN 22 CFSM 6.58 IN 89.67 AC-FT 191300

## 12026150 SKOOKUMCHUCK RIVER BELOW BLOODY RUN CREEK NEAR CENTRALIA, WA

**LOCATION.**--Lat 46°47'25", long 122°44'03", in NW¼NW¼ sec.18, T.15 N., R.1 E., Thurston County, Hydrologic Unit 17100103, on right bank, 0.7 mi (1.1 km) downstream from Bloody Run Creek, 1.2 mi (1.9 km) downstream from Skookumchuck Dam, 12 mi (19 km) northeast of Centralia, and at mile 20.7 (33.3 km).

**DRAINAGE AREA.**--65.9 mi² (170.7 km²). Area at site used prior to August 1969, 61.7 mi² (159.8 km²).

**PERIOD OF RECORD.**--April 1929 to November 1933, October 1939 to current year. Monthly discharge only for some periods, published in WSP 1316 and 1736. Published as "near Centralia" (12026000) 1929 to July 1969.

**GAGE.**--Water-stage recorder. Altitude of gage is 310 ft (94 m), from topographic map. Apr. 1, 1929, to Sept. 30, 1931, and Feb. 1, 1932, to Dec. 6, 1933, nonrecording gage at site 1.1 mi (1.8 km) upstream at different datum. Oct. 1939 to July 1969 at site 1.3 mi (2.1 km) upstream at datum 301.04 ft (91.757 m) above mean sea level.

**REMARKS.**--Records good. Flow regulated by Skookumchuck Dam since January 1971. No diversions above station.

**AVERAGE DISCHARGE.**--41 years (water years 1930-33, 1940-76), 256 ft³/s (7.250 m³/s), 52.75 in/yr (1,340 mm/yr), 185,500 acre-ft/yr (229 hm³/yr).

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 6,710 ft³/s (190 m³/s), Dec. 9, 1953, gage height, 48.59 ft (14.810 m), site and datum then in use; minimum 12 ft³/s (0.34 m³/s) May 28, 1970, caused by pumping during dam construction.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges above base 2,000 ft³/s (56.6 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 4 | 0645 | *4,950 | 140 | *11.14 | 3.395 | Jan. 15 | 1000 | 3,840 | 109 | 10.62 | 3.237 |

Minimum discharge, 94 ft³/s (2.66 m³/s) May 26, 27, 28, 29; minimum gage height, 5.10 ft (1.554 m) Oct. 3.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 142 | 237 | 2150 | 503 | 366 | 471 | 408 | 277 | 106 | 97 | 106 | 122 |
| 2 | 139 | 237 | 2940 | 455 | 356 | 369 | 356 | 455 | 122 | 97 | 106 | 137 |
| 3 | 139 | 237 | 4170 | 435 | 342 | 304 | 317 | 411 | 131 | 97 | 106 | 137 |
| 4 | 142 | 237 | 4050 | 443 | 334 | 268 | 292 | 331 | 130 | 97 | 108 | 137 |
| 5 | 142 | 237 | 1920 | 559 | 324 | 265 | 283 | 295 | 130 | 95 | 108 | 137 |
| 6 | 142 | 237 | 1100 | 725 | 307 | 241 | 298 | 265 | 127 | 95 | 108 | 137 |
| 7 | 139 | 252 | 990 | 638 | 301 | 214 | 298 | 238 | 127 | 95 | 106 | 137 |
| 8 | 139 | 273 | 1140 | 705 | 295 | 196 | 317 | 226 | 127 | 100 | 106 | 135 |
| 9 | 139 | 264 | 935 | 715 | 292 | 187 | 331 | 229 | 127 | 97 | 106 | 135 |
| 10 | 139 | 264 | 705 | 660 | 289 | 193 | 307 | 229 | 127 | 97 | 106 | 127 |
| 11 | 139 | 264 | 539 | 1160 | 286 | 217 | 373 | 229 | 127 | 97 | 106 | 125 |
| 12 | 139 | 261 | 447 | 1070 | 286 | 205 | 373 | 199 | 130 | 97 | 108 | 125 |
| 13 | 139 | 255 | 394 | 770 | 280 | 196 | 320 | 177 | 125 | 97 | 106 | 125 |
| 14 | 139 | 267 | 376 | 1700 | 277 | 193 | 295 | 211 | 125 | 95 | 106 | 127 |
| 15 | 139 | 306 | 369 | 3400 | 277 | 155 | 352 | 190 | 125 | 102 | 111 | 127 |
| 16 | 139 | 327 | 362 | 2150 | 301 | 152 | 320 | 162 | 125 | 106 | 106 | 127 |
| 17 | 142 | 342 | 355 | 1310 | 310 | 199 | 289 | 182 | 120 | 106 | 104 | 127 |
| 18 | 142 | 339 | 345 | 920 | 507 | 383 | 268 | 220 | 117 | 106 | 102 | 125 |
| 19 | 142 | 327 | 341 | 674 | 815 | 527 | 250 | 214 | 117 | 106 | 100 | 125 |
| 20 | 142 | 324 | 334 | 535 | 588 | 503 | 286 | 211 | 117 | 106 | 102 | 127 |
| 21 | 144 | 318 | 324 | 463 | 447 | 503 | 298 | 162 | 106 | 106 | 100 | 127 |
| 22 | 142 | 315 | 320 | 439 | 376 | 651 | 280 | 126 | 100 | 106 | 100 | 125 |
| 23 | 139 | 428 | 320 | 419 | 292 | 720 | 262 | 115 | 100 | 106 | 102 | 125 |
| 24 | 139 | 845 | 334 | 412 | 455 | 1250 | 313 | 100 | 100 | 106 | 102 | 125 |
| 25 | 142 | 760 | 348 | 401 | 692 | 1560 | 355 | 96 | 97 | 106 | 104 | 125 |
| 26 | 144 | 850 | 427 | 394 | 678 | 975 | 338 | 94 | 97 | 106 | 102 | 122 |
| 27 | 142 | 810 | 900 | 401 | 745 | 760 | 301 | 96 | 97 | 106 | 102 | 125 |
| 28 | 165 | 588 | 755 | 401 | 890 | 715 | 274 | 94 | 95 | 106 | 102 | 125 |
| 29 | 207 | 460 | 647 | 394 | 629 | 567 | 256 | 96 | 95 | 106 | 102 | 130 |
| 30 | 231 | 587 | 745 | 387 | --- | 475 | 253 | 96 | 95 | 106 | 102 | 130 |
| 31 | 240 | --- | 633 | 376 | --- | 455 | --- | 96 | --- | 106 | 102 | --- |
| TOTAL | 4639 | 11448 | 29715 | 24014 | 12337 | 14069 | 9263 | 6122 | 3464 | 3151 | 3237 | 3860 |
| MEAN | 150 | 382 | 959 | 775 | 425 | 454 | 309 | 197 | 115 | 102 | 104 | 129 |
| MAX | 240 | 850 | 4170 | 3400 | 890 | 1560 | 408 | 455 | 131 | 106 | 111 | 137 |
| MIN | 139 | 237 | 320 | 376 | 277 | 152 | 250 | 94 | 95 | 95 | 100 | 122 |
| AC-FT | 9200 | 22710 | 58940 | 47630 | 24470 | 27910 | 18370 | 12140 | 6870 | 6250 | 6420 | 7660 |

CAL YR 1975 TOTAL 119470 MEAN 327 MAX 4170 MIN 76 CFSM 4.96 IN 67.44 AC-FT 237000
WTR YR 1976 TOTAL 125319 MEAN 342 MAX 4170 MIN 94 CFSM 5.19 IN 70.74 AC-FT 248600

## 12026400 SKOOKUMCHUCK RIVER NEAR BUCODA, WA

LOCATION.--Lat 46°46'20", long 122°55'23", in SW¼NW¼ sec.22, T.15 N., R.2 W., Thurston County, Hydrologic Unit 17100103, on left bank 100 ft (30 m) downstream from bridge on State Highway 507, 3.3 mi (5.3 km) southwest of Bucoda, and at mile 6.4 (10.3 km).

DRAINAGE AREA.--112 mi$^2$ (290 km$^2$).

PERIOD OF RECORD.--December 1967 to current year, water temperatures October 1968 to September 1971, sediment records July 1968 to September 1971.

GAGE.--Water-stage recorder. Altitude of gage is 195 ft (59 m), from topographic map.

REMARKS.--Records good. Flow regulated by Skookumchuck River Dam since January 1971. Up to 30 ft$^3$/s (0.85 m$^3$/s) diverted at point 0.5 mi (0.8 km) upstream for consumptive use at Centralia Steam Electric Project. Other minor diversions for domestic use and irrigation above station.

AVERAGE DISCHARGE.--8 years, 410 ft$^3$/s (11.61 m$^3$/s), 49.71 in/yr (1,263 mm/yr), 297,000 acre-ft/yr (366 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,190 ft$^3$/s (232 m$^3$/s) Jan. 21, 1972, gage height, 16.82 ft (5.127 m); minimum, 21 ft$^3$/s (0.59 m$^3$/s) Aug. 15, 16, 18, 19, 20, 1970, gage height, 3.85 ft (1.173 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 2,750 ft$^3$/s (77.9 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 4 | 1700 | *6,110 | 173 | *15.42 | 4.700 | Jan. 15 | 1900 | 5,060 | 143 | 14.53 | 4.429 |

Minimum discharge, 90 ft$^3$/s (2.55 m$^3$/s) July 23, 24, 25, gage height, 4.48 ft (1.366 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 142 | 302 | 2260 | 796 | 556 | 784 | 552 | 335 | 153 | 100 | 102 | 101 |
| 2 | 134 | 284 | 3770 | 668 | 542 | 592 | 496 | 503 | 159 | 100 | 109 | 122 |
| 3 | 136 | 284 | 5070 | 608 | 514 | 492 | 436 | 506 | 144 | 107 | 108 | 125 |
| 4 | 142 | 290 | 5790 | 696 | 478 | 433 | 398 | 423 | 139 | 109 | 97 | 128 |
| 5 | 138 | 275 | 3310 | 952 | 458 | 401 | 380 | 387 | 144 | 108 | 96 | 129 |
| 6 | 140 | 293 | 1550 | 1180 | 433 | 373 | 398 | 352 | 144 | 107 | 97 | 133 |
| 7 | 136 | 366 | 1330 | 1040 | 402 | 329 | 398 | 299 | 138 | 110 | 107 | 146 |
| 8 | 136 | 496 | 1580 | 1060 | 391 | 320 | 393 | 281 | 124 | 126 | 113 | 129 |
| 9 | 138 | 496 | 1290 | 1080 | 388 | 281 | 426 | 278 | 127 | 119 | 103 | 121 |
| 10 | 138 | 405 | 1010 | 972 | 380 | 269 | 412 | 281 | 126 | 114 | 102 | 119 |
| 11 | 136 | 356 | 792 | 1530 | 374 | 305 | 482 | 290 | 128 | 112 | 98 | 111 |
| 12 | 136 | 326 | 640 | 1600 | 398 | 293 | 500 | 230 | 130 | 110 | 97 | 114 |
| 13 | 136 | 314 | 576 | 1190 | 389 | 293 | 422 | 205 | 129 | 109 | 97 | 121 |
| 14 | 134 | 387 | 556 | 1960 | 394 | 296 | 384 | 222 | 128 | 108 | 99 | 127 |
| 15 | 146 | 531 | 548 | 4380 | 426 | 254 | 468 | 233 | 134 | 109 | 107 | 124 |
| 16 | 142 | 600 | 534 | 3450 | 688 | 212 | 440 | 187 | 147 | 116 | 119 | 116 |
| 17 | 140 | 616 | 520 | 1790 | 772 | 269 | 394 | 175 | 131 | 109 | 116 | 112 |
| 18 | 150 | 527 | 503 | 1240 | 988 | 426 | 363 | 245 | 128 | 114 | 114 | 110 |
| 19 | 156 | 478 | 486 | 936 | 1150 | 616 | 338 | 245 | 122 | 111 | 102 | 110 |
| 20 | 160 | 440 | 472 | 744 | 864 | 648 | 377 | 233 | 127 | 105 | 104 | 119 |
| 21 | 170 | 408 | 458 | 624 | 620 | 688 | 398 | 192 | 127 | 108 | 102 | 112 |
| 22 | 177 | 408 | 454 | 608 | 520 | 896 | 373 | 149 | 106 | 116 | 103 | 115 |
| 23 | 168 | 612 | 503 | 604 | 447 | 1040 | 345 | 151 | 99 | 105 | 102 | 126 |
| 24 | 162 | 948 | 656 | 596 | 628 | 1400 | 398 | 127 | 100 | 90 | 102 | 122 |
| 25 | 166 | 860 | 696 | 584 | 1030 | 2120 | 450 | 118 | 100 | 96 | 106 | 117 |
| 26 | 187 | 988 | 1050 | 588 | 1070 | 1380 | 443 | 115 | 107 | 102 | 105 | 109 |
| 27 | 182 | 940 | 1380 | 712 | 1060 | 1160 | 401 | 128 | 107 | 101 | 103 | 106 |
| 28 | 200 | 696 | 1160 | 712 | 1290 | 1040 | 345 | 135 | 99 | 101 | 101 | 115 |
| 29 | 311 | 542 | 956 | 608 | 1040 | 828 | 323 | 131 | 98 | 101 | 100 | 120 |
| 30 | 401 | 688 | 1150 | 566 | --- | 660 | 320 | 140 | 98 | 100 | 100 | 128 |
| 31 | 345 | --- | 1000 | 559 | --- | 620 | --- | 140 | --- | 99 | 99 | --- |
| TOTAL | 5285 | 15156 | 42050 | 34633 | 18690 | 19718 | 12253 | 7436 | 3743 | 3322 | 3210 | 3587 |
| MEAN | 170 | 505 | 1356 | 1117 | 644 | 636 | 408 | 240 | 125 | 107 | 104 | 120 |
| MAX | 401 | 988 | 5790 | 4380 | 1290 | 2120 | 552 | 506 | 159 | 126 | 119 | 146 |
| MIN | 134 | 275 | 454 | 559 | 374 | 212 | 320 | 115 | 98 | 90 | 96 | 101 |
| AC-FT | 10480 | 30060 | 83410 | 68690 | 37070 | 39110 | 24300 | 14750 | 7420 | 6590 | 6370 | 7110 |

CAL YR 1975 TOTAL 162175 MEAN 444 MAX 5790 MIN 51 CFSM 3.96 IN 53.86 AC-FT 321700
WTR YR 1976 TOTAL 169083 MEAN 462 MAX 5790 MIN 90 CFSM 4.13 IN 56.16 AC-FT 335400

## 12027500 CHEHALIS RIVER NEAR GRAND MOUND, WA

LOCATION.--Lat 46°46'34", long 123°02'04", in NE¼NE¼ sec.22, T.15 N., R.3 W., Thurston County, Hydrologic Unit 17100103, on left bank at downstream side of highway bridge at Meadows, 1.5 mi (2.4 km) southwest of Grand Mound, 7.0 mi (11.3 km) downstream from Skookumchuck River, and at mile 59.9 (96.4 km).

DRAINAGE AREA.--895 mi$^2$ (2,318 km$^2$).

PERIOD OF RECORD.--Water discharge: October 1926 to current year. Water temperatures March 1952 to September 1974.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1929-30(M), 1931, 1932-34(M).

GAGE.--Water-stage recorder. Datum of gage is 123.65 ft (37.689 m), revised, above mean sea level. Prior to Oct. 3, 1934, nonrecording gage at present site at datum 3.0 ft (0.91 m) higher.

REMARKS.--Records excellent. Minor effect from regulation on Skookumchuck River by Skookumchuck Dam since January 1971. Up to 30 ft$^3$/s (0.85 m$^3$/s) of Skookumchuck River is consumptively used at Centralia steam generating plant. Many small diversions for irrigation and domestic use above station, including about 7 ft$^3$/s (0.20 m$^3$/s) for municipal water supply for Centralia and Chehalis.

AVERAGE DISCHARGE.--48 years, 2,867 ft$^3$/s (81.19 m$^3$/s), 43.50 in/yr (1,105 mm/yr), 2,077,000 acre-ft/yr (2,560 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,200 ft$^3$/s (1,390 m$^3$/s) Jan. 21, 1972, gage height, 18.21 ft (5.550 m); minimum, 82 ft$^3$/s (2.32 m$^3$/s) Aug. 30, 1967; minimum gage height, 0.83 ft (0.253 m) Aug. 27, 1958.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 16,000 ft$^3$/s (453 m$^3$/s) and maximum (*):

| | | Discharge | | Gage height | | | | Discharge | | Gage height | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | (ft$^3$/s) | (m$^3$/s) | (ft) | (m) | Date | Time | (ft$^3$/s) | (m$^3$/s) | (ft) | (m) |
| Dec. 5 | 0200 | *44,800 | 1,270 | *17.73 | 5.404 | Jan. 16 | 1300 | 29,200 | 827 | 15.82 | 4.822 |
| Dec. 27 | 1400 | 16,400 | 464 | 12.72 | 3.877 | Mar. 25 | 1700 | 16,500 | 467 | 12.78 | 3.895 |

Minimum discharge, 268 ft$^3$/s (7.59 m$^3$/s) Aug. 5, 6, gage height, 2.52 ft (0.768 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 280 | 4840 | 12600 | 6340 | 3180 | 7510 | 5260 | 1760 | 1240 | 445 | 280 | 300 |
| 2 | 275 | 3360 | 19100 | 5080 | 2920 | 5860 | 4440 | 2100 | 1300 | 500 | 280 | 300 |
| 3 | 275 | 2960 | 24800 | 4370 | 2690 | 4710 | 3870 | 2250 | 1220 | 490 | 292 | 308 |
| 4 | 334 | 2580 | 36600 | 4740 | 2520 | 3940 | 3410 | 1930 | 1080 | 470 | 284 | 308 |
| 5 | 544 | 2180 | 39100 | 8300 | 2270 | 3410 | 3120 | 1810 | 984 | 465 | 272 | 308 |
| 6 | 550 | 2030 | 21700 | 8780 | 2090 | 3050 | 2940 | 1690 | 914 | 450 | 276 | 316 |
| 7 | 634 | 3850 | 15200 | 8050 | 1970 | 2790 | 2780 | 1540 | 858 | 430 | 300 | 340 |
| 8 | 508 | 6400 | 14000 | 8780 | 1920 | 2570 | 2820 | 1430 | 809 | 552 | 358 | 332 |
| 9 | 520 | 8050 | 11000 | 9160 | 2010 | 2400 | 3000 | 1350 | 788 | 886 | 362 | 308 |
| 10 | 850 | 6320 | 8000 | 7960 | 2000 | 2330 | 2780 | 1300 | 767 | 694 | 328 | 296 |
| 11 | 801 | 4680 | 6040 | 12000 | 1900 | 2670 | 2930 | 1340 | 742 | 596 | 308 | 284 |
| 12 | 668 | 3580 | 4850 | 14200 | 2730 | 2460 | 3100 | 1290 | 742 | 552 | 292 | 280 |
| 13 | 574 | 3020 | 4300 | 11400 | 3520 | 2300 | 2850 | 1170 | 754 | 515 | 276 | 300 |
| 14 | 520 | 3980 | 3770 | 11900 | 3520 | 2510 | 2560 | 1090 | 712 | 485 | 292 | 371 |
| 15 | 508 | 8940 | 3650 | 19700 | 4370 | 2450 | 3050 | 1080 | 688 | 450 | 358 | 535 |
| 16 | 598 | 11300 | 3930 | 27500 | 6680 | 2280 | 3150 | 1010 | 767 | 425 | 505 | 520 |
| 17 | 604 | 10200 | 3700 | 20700 | 10600 | 2480 | 2870 | 963 | 858 | 412 | 563 | 412 |
| 18 | 1020 | 8160 | 3420 | 14400 | 12800 | 3220 | 2740 | 998 | 767 | 394 | 495 | 362 |
| 19 | 1320 | 6050 | 3180 | 9040 | 11500 | 4400 | 2540 | 984 | 694 | 385 | 412 | 340 |
| 20 | 1470 | 4650 | 2930 | 6440 | 8320 | 4530 | 2760 | 956 | 646 | 367 | 380 | 328 |
| 21 | 1320 | 3710 | 2720 | 5210 | 6070 | 4970 | 2870 | 921 | 629 | 358 | 407 | 324 |
| 22 | 1440 | 3230 | 2640 | 4400 | 4810 | 5260 | 2620 | 837 | 596 | 367 | 380 | 308 |
| 23 | 1250 | 5090 | 3210 | 4280 | 4150 | 6390 | 2390 | 802 | 557 | 362 | 353 | 316 |
| 24 | 1030 | 7600 | 5510 | 3620 | 4390 | 9500 | 2550 | 802 | 541 | 336 | 340 | 320 |
| 25 | 946 | 6460 | 6660 | 3340 | 7130 | 16100 | 2730 | 837 | 546 | 320 | 353 | 308 |
| 26 | 2170 | 6460 | 8880 | 3110 | 8050 | 14800 | 2580 | 837 | 535 | 316 | 394 | 300 |
| 27 | 3400 | 7710 | 15900 | 4230 | 8360 | 12100 | 2340 | 788 | 520 | 308 | 389 | 288 |
| 28 | 3810 | 6210 | 14200 | 5590 | 10800 | 10800 | 2130 | 837 | 495 | 300 | 358 | 284 |
| 29 | 6050 | 4800 | 9640 | 4640 | 9540 | 8760 | 1960 | 844 | 450 | 292 | 336 | 292 |
| 30 | 10600 | 4560 | 9220 | 3980 | --- | 6750 | 1830 | 984 | 430 | 284 | 324 | 296 |
| 31 | 8680 | --- | 8200 | 3500 | --- | 5980 | --- | 1070 | --- | 280 | 312 | --- |
| TOTAL | 53549 | 162960 | 328650 | 264740 | 152810 | 169280 | 86970 | 37600 | 22629 | 13486 | 10859 | 9884 |
| MEAN | 1727 | 5432 | 10600 | 8540 | 5269 | 5461 | 2899 | 1213 | 754 | 435 | 350 | 329 |
| MAX | 10600 | 11300 | 39100 | 27500 | 12800 | 16100 | 5260 | 2250 | 1300 | 886 | 563 | 535 |
| MIN | 275 | 2030 | 2640 | 3110 | 1900 | 2280 | 1830 | 788 | 430 | 280 | 272 | 280 |
| CFSM | 1.93 | 6.07 | 11.8 | 9.54 | 5.89 | 6.10 | 3.24 | 1.36 | .84 | .49 | .39 | .37 |
| IN. | 2.23 | 6.77 | 13.66 | 11.00 | 6.35 | 7.04 | 3.61 | 1.56 | .94 | .56 | .45 | .41 |
| AC-FT | 106200 | 323200 | 651900 | 525100 | 303100 | 335800 | 172500 | 74580 | 44880 | 26750 | 21540 | 19600 |

CAL YR 1975 TOTAL 1267948 MEAN 3474 MAX 39100 MIN 146 CFSM 3.88 IN 52.70 AC-FT 2515000
WTR YR 1976 TOTAL 1313417 MEAN 3589 MAX 39100 MIN 272 CFSM 4.01 IN 54.59 AC-FT 2605000

## 12031000 CHEHALIS RIVER AT PORTER, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 46°56'17", long 123°18'45", on north line of NE¼ sec.28, T.17 N., R.5 W., Grays Harbor County, Hydrologic Unit 17100103, in downstream end of left bank pier of Chehalis River bridge at mouth of Porter Creek, 0.1 mi (0.2 km) west of Porter, and at mile 33.3 (53.6 km).

DRAINAGE AREA.--1,294 mi$^2$ (3,351 km$^2$).

### WATER DISCHARGE RECORDS

PERIOD OF RECORD.--January 1952 to September 1972, water years 1973-75 (annual maximum), May 1975 to current year.

REVISED RECORDS.--WSP 1716: Drainage area. WSP 1932: 1954, 1956, 1960(M).

GAGE.--Water-stage recorder. Datum of gage is 23.64 ft (7.205 m), above mean sea level.

REMARKS.--Records excellent except for periods of no gage-height record Apr. 6-19, and June 11-28, which are good. Minor effect from regulation on Skookumchuck River by Skookumchuck Dam since January 1971. Up to 30 ft$^3$/s (0.85 m$^3$/s) of Skookumchuck River is consumptively used at Centralia steam generating plant. Many small diversions for irrigation and domestic use above station, including about 7 ft$^3$/s (0.20 m$^3$/s) for municipal water supply for Centralia and Chehalis.

AVERAGE DISCHARGE.--21 years (water years 1953-72, 1976), 4,332 ft$^3$/s (122.7 m$^3$/s), 45.46 in/yr (1,155 mm/yr), 3,139,000 acre-ft/yr (3,870 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,600 ft$^3$/s (1,570 m$^3$/s) Jan. 22, 1972, gage height, 23.88 ft (7.279 m); minimum, 164 ft$^3$/s (4.64 m$^3$/s) Oct. 17, 1952, gage height, 2.25 ft (0.686 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 28, 1937, reached a stage of 24.7 ft (7.53 m), from levels by Grays Harbor County.

Flood of December 1933 reached a stage of 23.13 ft (7.050 m), from river profile by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20,000 ft$^3$/s (566 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 5 | 2300 | *48,100 | 1,360 | *23.36 | 7.120 | Jan. 17 | 0600 | 36,400 | 1,030 | 21.83 | 6.654 |
| Dec. 28 | 1600 | 20,600 | 583 | 19.13 | 5.831 | | | | | | |

Minimum discharge, 410 ft$^3$/s (11.6 m$^3$/s) Oct. 2, gage height, 3.19 ft (0.972 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 418 | 7640 | 13500 | 12000 | 5400 | 12600 | 8160 | 2750 | 1710 | 675 | 446 | 474 |
| 2 | 414 | 5280 | 24400 | 9500 | 4950 | 10100 | 6780 | 2860 | 1860 | 720 | 450 | 458 |
| 3 | 430 | 4460 | 30000 | 7870 | 4600 | 8010 | 5840 | 3310 | 1810 | 755 | 450 | 466 |
| 4 | 470 | 3940 | 35500 | 7930 | 4280 | 6650 | 5150 | 2990 | 1610 | 750 | 454 | 466 |
| 5 | 626 | 3440 | 43300 | 11200 | 3950 | 5790 | 4680 | 2750 | 1460 | 745 | 446 | 470 |
| 6 | 750 | 3180 | 39200 | 13200 | 3680 | 5160 | 4500 | 2610 | 1360 | 705 | 438 | 478 |
| 7 | 785 | 4300 | 28700 | 13100 | 3480 | 4750 | 4250 | 2430 | 1270 | 675 | 446 | 478 |
| 8 | 740 | 7070 | 21100 | 13000 | 3360 | 4430 | 4300 | 2250 | 1200 | 765 | 482 | 494 |
| 9 | 740 | 9510 | 17400 | 13700 | 3380 | 4160 | 4550 | 2110 | 1150 | 1040 | 526 | 470 |
| 10 | 885 | 8710 | 14300 | 13600 | 3390 | 4040 | 4300 | 2020 | 1120 | 1060 | 514 | 446 |
| 11 | 1030 | 6680 | 11000 | 15400 | 3390 | 4130 | 4500 | 2020 | 1100 | 905 | 482 | 434 |
| 12 | 889 | 5290 | 8540 | 17500 | 4370 | 4080 | 4500 | 2000 | 1100 | 825 | 458 | 442 |
| 13 | 758 | 4540 | 7250 | 17500 | 5630 | 3820 | 4250 | 1850 | 1100 | 775 | 442 | 446 |
| 14 | 673 | 5400 | 6380 | 16700 | 5790 | 3840 | 3900 | 1710 | 1050 | 725 | 470 | 634 |
| 15 | 720 | 10500 | 6240 | 23500 | 6680 | 3930 | 4400 | 1640 | 1020 | 680 | 542 | 646 |
| 16 | 732 | 14100 | 6440 | 31100 | 9140 | 3710 | 4600 | 1570 | 1100 | 638 | 685 | 765 |
| 17 | 900 | 14100 | 6190 | 35100 | 14300 | 3730 | 4300 | 1510 | 1200 | 618 | 790 | 642 |
| 18 | 1240 | 12300 | 5730 | 28700 | 16200 | 4300 | 4100 | 1480 | 1140 | 598 | 745 | 570 |
| 19 | 2060 | 9460 | 5290 | 18900 | 16500 | 5500 | 3900 | 1460 | 1060 | 582 | 650 | 530 |
| 20 | 2000 | 7280 | 4900 | 13200 | 14600 | 6160 | 3950 | 1420 | 960 | 574 | 622 | 502 |
| 21 | 2070 | 5910 | 4540 | 9840 | 11200 | 6620 | 4180 | 1380 | 900 | 550 | 594 | 486 |
| 22 | 1980 | 5110 | 4320 | 8020 | 8590 | 6820 | 3960 | 1300 | 960 | 550 | 582 | 482 |
| 23 | 1820 | 6090 | 4910 | 7330 | 7090 | 8220 | 3690 | 1220 | 800 | 554 | 550 | 482 |
| 24 | 1500 | 9230 | 7650 | 6490 | 6590 | 10600 | 3670 | 1220 | 800 | 534 | 550 | 486 |
| 25 | 1520 | 9210 | 9910 | 5780 | 8930 | 15800 | 3960 | 1270 | 800 | 514 | 546 | 482 |
| 26 | 2580 | 8800 | 13300 | 5300 | 10900 | 17900 | 3780 | 1300 | 760 | 494 | 558 | 470 |
| 27 | 4550 | 10300 | 17500 | 6550 | 11700 | 17100 | 3580 | 1240 | 760 | 482 | 578 | 458 |
| 28 | 5100 | 9320 | 19900 | 8900 | 13200 | 15600 | 3340 | 1230 | 705 | 474 | 562 | 446 |
| 29 | 6920 | 7450 | 17300 | 7910 | 14200 | 13900 | 3110 | 1320 | 685 | 466 | 530 | 442 |
| 30 | 11300 | 7180 | 14900 | 6780 | --- | 11300 | 2900 | 1420 | 655 | 458 | 506 | 442 |
| 31 | 11800 | --- | 14200 | 5960 | --- | 9290 | --- | 1660 | --- | 450 | 490 | --- |
| TOTAL | 68400 | 225760 | 463790 | 411560 | 229570 | 242030 | 131080 | 57300 | 33185 | 20336 | 16584 | 14987 |
| MEAN | 2206 | 7525 | 14960 | 13280 | 7916 | 7807 | 4369 | 1848 | 1106 | 656 | 535 | 500 |
| MAX | 11800 | 14100 | 43300 | 35100 | 16600 | 17900 | 8160 | 3310 | 1860 | 1060 | 790 | 765 |
| MIN | 414 | 3180 | 4320 | 5300 | 3360 | 3710 | 2900 | 1220 | 655 | 450 | 438 | 434 |
| CFSM | 1.70 | 5.82 | 11.6 | 10.3 | 6.12 | 6.03 | 3.38 | 1.43 | .85 | .51 | .41 | .39 |
| IN. | 1.97 | 6.49 | 13.33 | 11.83 | 6.60 | 6.96 | 3.77 | 1.65 | .95 | .58 | .48 | .43 |
| AC-FT | 135700 | 447800 | 919900 | 816300 | 455400 | 480100 | 260000 | 113700 | 65820 | 40340 | 32890 | 29730 |

WTR YR 1976 TOTAL 1914582 MEAN 5231 MAX 43300 MIN 414 CFSM 4.04 IN 55.04 AC-FT 3798000

## 12031000 CHEHALIS RIVER AT PORTER, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-73, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1959 to September 1960.
pH: July 1959 to September 1960.
WATER TEMPERATURES: July 1959 to September 1960, October 1961 to July 1972.
SUSPENDED SEDIMENT: October 1961 to September 1971.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | STREPTOCOCCI (COLONIES PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 17... | 1030 | 825 | 85 | 7.5 | 12.2 | 3 | 110 | 100 | 10 | 28 | 0 | 7.6 |
| NOV 24... | 1200 | 9440 | 65 | 6.2 | 8.2 | 10 | 100 | 150 | 80 | 22 | 4 | 5.6 |
| DEC 15... | 1100 | 6260 | 57 | 6.9 | 4.6 | 10 | 320 | 80 | 84 | 20 | 0 | 5.4 |
| JAN 21... | 1400 | 9580 | 59 | 7.2 | 6.2 | 10 | 270 | 27 | 30 | 22 | 0 | 5.1 |
| FEB 17... | 1100 | 14200 | 54 | 7.2 | 6.6 | 35 | 1200 | 230 | 110 | 16 | 1 | 3.9 |
| MAR 25... | 1300 | 16100 | 58 | 7.1 | 6.4 | 43 | 1400 | 38 | 100 | 18 | 3 | 3.9 |
| APR 19... | 1015 | 3810 | 55 | 7.0 | 9.2 | 5 | 80 | 66 | 4 | 24 | 0 | 5.9 |
| MAY 24... | 1000 | 1210 | 84 | 7.2 | 13.5 | 2 | 280 | 20 | 16 | 29 | 0 | 7.2 |
| JUN 28... | 1100 | 725 | 86 | 6.8 | 16.3 | 2 | 50 | 16 | 126 | 30 | 0 | 7.4 |
| JUL 27... | 1300 | 482 | 91 | 7.4 | 21.6 | 1 | 8200 | 12 | 88 | 33 | 0 | 9.0 |
| AUG 23... | 1200 | 550 | 91 | 6.6 | 17.1 | 2 | 74 | 21 | 19 | 31 | 6 | 8.3 |
| SEP 20... | 1030 | 502 | 100 | 6.8 | 16.8 | 1 | 100 | 25 | -- | 33 | 0 | 8.5 |

| DATE | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED FLUORIDE (F) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 17... | 2.2 | 5.3 | .7 | 35 | 29 | 1.8 | 5.7 | 6.0 | .1 | 15 | 67 | 60 |
| NOV 24... | 1.9 | 4.1 | .6 | 22 | 18 | 22 | 4.9 | 4.0 | .1 | 14 | 57 | 46 |
| DEC 15... | 1.6 | 5.3 | .6 | 25 | 21 | 5.0 | 3.6 | 3.4 | .0 | 15 | 53 | 47 |
| JAN 21... | 2.2 | 4.0 | .5 | 26 | 21 | 2.6 | 3.2 | 3.4 | .1 | 14 | 46 | 45 |
| FEB 17... | 1.5 | 4.0 | .6 | 18 | 15 | 1.8 | 5.2 | 3.2 | .0 | 11 | 44 | 38 |
| MAR 25... | 1.9 | 3.4 | .5 | 18 | 15 | 2.3 | 3.0 | 3.3 | .1 | 11 | 40 | 36 |
| APR 19... | 2.2 | 4.6 | .5 | 30 | 25 | 4.8 | 4.3 | 3.7 | .1 | 14 | 53 | 50 |
| MAY 24... | 2.7 | 5.0 | .6 | 38 | 31 | 3.8 | 4.6 | 4.5 | .1 | 14 | 54 | 57 |
| JUN 28... | 2.8 | 6.0 | .6 | 40 | 33 | 10 | 4.6 | 5.7 | .1 | 15 | 65 | 62 |
| JUL 27... | 2.6 | 6.4 | .8 | 42 | 34 | 2.7 | 5.0 | 6.6 | .1 | 15 | 75 | 66 |
| AUG 23... | 2.6 | 6.5 | .8 | 31 | 25 | 12 | 5.7 | 6.3 | .1 | 16 | 69 | 62 |
| SEP 20... | 2.9 | 7.2 | .9 | 42 | 34 | 11 | 6.0 | 7.2 | .1 | 15 | 71 | 69 |

B Results based upon colony counts outside the ideal range.

## 12031000 CHEHALIS RIVER AT PORTER, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TOTAL NON-FILT-RABLE RESIDUE (MG/L) | SUS-PENDED SOLIDS (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | SUS-PENDED SEDI-MENT (MG/L) | SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY) | SUS. SED. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 17... | -- | -- | .37 | .01 | .38 | .06 | .28 | .05 | .03 | 8 | 18 | 91 |
| NOV 24... | -- | -- | .46 | .01 | .47 | .13 | .18 | .05 | .01 | 28 | 714 | 80 |
| DEC 15... | -- | -- | .54 | .01 | .55 | .10 | .21 | .05 | .02 | 19 | 321 | 83 |
| JAN 21... | -- | -- | .60 | .01 | .61 | .10 | .22 | .05 | .01 | 33 | 854 | 72 |
| FEB 17... | -- | -- | .55 | .01 | .56 | .11 | .55 | .15 | .01 | 140 | 5370 | 72 |
| MAR 25... | -- | -- | .50 | .02 | .52 | .23 | .48 | .18 | .01 | 144 | 6260 | 77 |
| APR 19... | -- | -- | .05 | .00 | .05 | .10 | .28 | .04 | .01 | 15 | 154 | 85 |
| MAY 24... | -- | -- | .21 | .01 | .22 | .06 | .24 | .03 | .01 | 4 | 13 | 89 |
| JUN 28... | -- | -- | .19 | .01 | .20 | .05 | .30 | .04 | .02 | 4 | 7.8 | 90 |
| JUL 27... | -- | 8 | .09 | .01 | .10 | .09 | .32 | .05 | .02 | 26 | 34 | 97 |
| AUG 23... | 0 | -- | .20 | .00 | .20 | .04 | .18 | .05 | .04 | 4 | 5.9 | 100 |
| SEP 20... | 5 | -- | .19 | .01 | .20 | .05 | .22 | .06 | .04 | 6 | 8.1 | 100 |

| DATE | TIME | TOTAL ARSENIC (AS) (UG/L) | DIS-SOLVED ARSENIC (AS) (UG/L) | TOTAL CAD-MIUM (CD) (UG/L) | DIS-SOLVED CAD-MIUM (CD) (UG/L) | TOTAL CHRO-MIUM (CR) (UG/L) | DIS-SOLVED CHRO-MIUM (CR) (UG/L) | TOTAL COBALT (CO) (UG/L) | DIS-SOLVED COBALT (CO) (UG/L) | TOTAL COPPER (CU) (UG/L) | DIS-SOLVED COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 17... | 1030 | 1 | 0 | 0 | 1 | 40 | 0 | 50 | 0 | 10 | 2 | 490 |
| JAN 21... | 1400 | 0 | 0 | <10 | 0 | 0 | 0 | <50 | 0 | 10 | 3 | 1200 |
| APR 19... | 1015 | 0 | 0 | <10 | 0 | 0 | 0 | <50 | 0 | 20 | 8 | 770 |
| JUL 27... | 1300 | 1 | 1 | <10 | 0 | 0 | 0 | <50 | 1 | 10 | 1 | 230 |

| DATE | DIS-SOLVED IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | DIS-SOLVED LEAD (PB) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | DIS-SOLVED MAN-GANESE (MN) (UG/L) | TOTAL MERCURY (HG) (UG/L) | DIS-SOLVED MERCURY (HG) (UG/L) | TOTAL SELE-NIUM (SE) (UG/L) | DIS-SOLVED SELE-NIUM (SE) (UG/L) | TOTAL ZINC (ZN) (UG/L) | DIS-SOLVED ZINC (ZN) (UG/L) | TOTAL ORGANIC CARBON (C) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 17... | 190 | 100 | 3 | 70 | 10 | .0 | .0 | 0 | 0 | 40 | 10 | 5.5 |
| JAN 21... | 120 | <100 | 2 | 40 | 20 | .0 | .1 | 0 | 0 | 20 | 0 | 3.6 |
| APR 19... | 180 | <100 | 3 | 20 | 10 | .0 | .0 | 0 | 0 | 0 | 10 | 3.7 |
| JUL 27... | 130 | <100 | 0 | 30 | 0 | .0 | .0 | 0 | 0 | 10 | 0 | 4.0 |

12031000 CHEHALIS RIVER AT PORTER, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

IDENTIFICATION OF PHYTOPLANKTON

1.000 CELLS/ML

OCT. 17, 1975
1030 HOURS

| | _ORGANISM__NAME_ | _COMMON__NAME_ | CELLS/ML | PER_CENT |
|---|---|---|---|---|
| | CHRYSOPHYTA | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | |
| | ..CENTRALES | CENTRIC | | |
| | ...COSCINODISCACEAE | | | |
| L | ....CYCLOTELLA | | | 0 |
| L | ....MELOSIRA | | | 0 |
| | ..PENNALES | PENNATE | | |
| | ...ACHNANTHACEAE | | | |
| | ....ACHNANTHES | | 120 | 11 |
| D | ....COCCONEIS | | 200 | 19 |
| | ....RHOICOSPHENIA | | 58 | 6 |
| | ...CYMBELLACEAE | | | |
| D | ....CYMBELLA | | 230 | 22 |
| | ...DIATOMACEAE | | | |
| | ....DIATOMA | | 58 | 6 |
| | ...FRAGILARIACEAE | | | |
| L | ....ASTERIONELLA | | | 0 |
| | ...GOMPHONEMATACEAE | | | |
| | ....GOMPHONEMA | | 120 | 11 |
| | ...NAVICULACEAE | NAVICULOID | | |
| L | ....CALONEIS | | | 0 |
| | ....NAVICULA | | 120 | 11 |
| | ...NITZSCHIACEAE | | | |
| | ....HANTZSCHIA | | 29 | 3 |
| | ....NITZSCHIA | | 120 | 11 |
| | | TOTALS | 1.000 | 100 |

2.957=DIVERSITY

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
FAMILY 2.344
GENERA 2.957
SAMPLING METHOD - EDI

440 CELLS/ML

NOV. 24, 1975
1200 HOURS

| | _ORGANISM__NAME_ | _COMMON__NAME_ | CELLS/ML | PER_CENT |
|---|---|---|---|---|
| | CHLOROPHYTA | GREEN ALGAE | | |
| | .CHLOROPHYCEAE | | | |
| | ..CHLOROCOCCALES | | | |
| | ...OOCYSTACEAE | | | |
| L | ....ANKISTRODESMUS | | | 0 |
| | CHRYSOPHYTA | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | |
| | ..PENNALES | PENNATE | | |
| | ...FRAGILARIACEAE | | | |
| L | ....H.ARCUS | | | 0 |
| | ..CENTRALES | CENTRIC | | |
| | ...COSCINODISCACEAE | | | |
| D | ....MELOSIRA | | 210 | 48 |
| | ..PENNALES | PENNATE | | |
| | ...ACHNANTHACEAE | | | |
| | ....ACHNANTHES | | 18 | 4 |
| L | ....RHOICOSPHENIA | | | 0 |
| | ...CYMBELLACEAE | | | |
| L | ....AMPHORA | | | 0 |
| | ....CYMBELLA | | 53 | 12 |
| | ...DIATOMACEAE | | | |
| L | ....DIATOMA | | | 0 |
| | ...FRAGILARIACEAE | | | |
| | ....ASTERIONELLA | | 53 | 12 |
| | ...GOMPHONEMATACEAE | | | |
| D | ....GOMPHONEMA | | 88 | 20 |
| | ...MERIDIONACEAE | | | |
| L | ....MERIDION | | | 0 |
| | ...NAVICULACEAE | NAVICULOID | | |
| L | ....NAVICULA | | | 0 |
| L | ....PINNULARIA | | | 0 |
| | ...NITZSCHIACEAE | | | |
| | ....NITZSCHIA | | 18 | 4 |
| | | TOTALS | 440 | 100 |

2.078=DIVERSITY

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
ORDER 0.999
FAMILY 2.078
GENERA 2.078
SAMPLING METHOD - EDI

12031000 CHEHALIS RIVER AT PORTER, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

IDENTIFICATION OF PHYTOPLANKTON

150 CELLS/ML

| DEC. 15, 1975<br>1100 HOURS | | _ORGANISM__NAME | _COMMON__NAME | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|---|
| | | CHRYSOPHYTA | | | | |
| | | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | | ..CENTRALES | CENTRIC | | | |
| | | ...COSCINODISCACEAE | | | | |
| | D | ....MELOSIRA | | 71 | 47 | |
| | | ..PENNALES | PENNATE | | | |
| | | ...ACHNANTHACEAE | | | | |
| | | ....ACHNANTHES | | 15 | 10 | |
| | | ...CYMBELLACEAE | | | | |
| | | ....CYMBELLA | | 5 | 3 | |
| | | ...DIATOMACEAE | | | | |
| | | ....DIATOMA | | 5 | 3 | |
| | | ...EUNOTIACEAE | | | | |
| | | ....EUNOTIA | | 5 | 3 | |
| | | ...FRAGILARIACEAE | | | | |
| | | ....FRAGILARIA | | 20 | 13 | |
| | | ....SYNEDRA | | 10 | 7 | |
| | | ...NAVICULACEAE | NAVICULOID | | | |
| | | ....NAVICULA | | 15 | 10 | |
| | | ...SURIRELLACEAE | | | | |
| | | ....SURIRELLA | | 5 | 3 | |
| | | | TOTALS | 150 | 99 | 2.480=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
ORDER 0.997
FAMILY 2.296
GENERA 2.480

SAMPLING METHOD - EDI

56 CELLS/ML

| JAN. 21, 1976<br>1400 HOURS | | _ORGANISM__NAME | _COMMON__NAME | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|---|
| | | CHRYSOPHYTA | | | | |
| | | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | | ..CENTRALES | CENTRIC | | | |
| | | ...COSCINODISCACEAE | | | | |
| | L | ....MELOSIRA | | | 0 | |
| | | ..PENNALES | PENNATE | | | |
| | | ...ACHNANTHACEAE | | | | |
| | | ....COCCONEIS | | 5 | 9 | |
| | | ....RHOICOSPHENIA | | 5 | 9 | |
| | | ...CYMBELLACEAE | | | | |
| | | ....AMPHORA | | 5 | 9 | |
| | L | ....RHOPALODIA | | | 0 | |
| | | ...EUNOTIACEAE | | | | |
| | | ....EUNOTIA | | 5 | 9 | |
| | | ...FRAGILARIACEAE | | | | |
| | D | ....FRAGILARIA | | 21 | 36 | |
| | | ...GOMPHONEMATACEAE | | | | |
| | D | ....GOMPHONEMA | | 10 | 18 | |
| | | ...NAVICULACEAE | NAVICULOID | | | |
| | | ....NAVICULA | | 5 | 9 | |
| | | | TOTALS | 56 | 99 | 2.550=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
FAMILY 2.369
GENERA 2.550

SAMPLING METHOD - EDI

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

### IDENTIFICATION OF PHYTOPLANKTON

1.000 CELLS/ML

| FEB. 17, 1976<br>1100 HOURS | | _ORGANISM__NAME | _COMMON__NAME | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|---|
| | | CHRYSOPHYTA | | | | |
| | | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | | ..CENTRALES | CENTRIC | | | |
| | | ...COSCINODISCACEAE | | | | |
| | | ....CYCLOTELLA | | 31 | 3 | |
| | L | ....MELOSIRA | | | 0 | |
| | | ..PENNALES | PENNATE | | | |
| | | ...ACHNANTHACEAE | | | | |
| | | ....ACHNANTHES | | 31 | 3 | |
| | | ....COCCONEIS | | 15 | 1 | |
| | | ...CYMBELLACEAE | | | | |
| | | ....CYMBELLA | | 15 | 1 | |
| | | ...FRAGILARIACEAE | | | | |
| | | ....SYNEDRA | | 15 | 1 | |
| | | ...GOMPHONEMATACEAE | | | | |
| | | ....GOMPHONEMA | | 31 | 3 | |
| | | ...NAVICULACEAE | NAVICULOID | | | |
| | | ....NAVICULA | | 77 | 7 | |
| | | ....STAURONEIS | | 15 | 1 | |
| | | ...NITZSCHIACEAE | | | | |
| | | ....NITZSCHIA | | 31 | 3 | |
| | | ...TABELLARIACEAE | | | | |
| | | ....TABELLARIA | | 15 | 1 | |
| | | | TOTALS | 280 | 24 | 3.081=DIVERSITY |
| | | CYANOPHYTA | BLUE-GREEN ALGAE | | | |
| | | .MYXOPHYCEAE | | | | |
| | | ..OSCILLATORIALES | FILAMENTOUS | | | |
| | | ...OSCILLATORIACEAE | | | | |
| | D | ....OSCILLATORIA | | 770 | 74 | |
| | | | TOTALS | 770 | 74 | 0.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.834
CLASS 0.834
ORDER 0.967
FAMILY 1.551
GENERA 1.649

SAMPLING METHOD - EDI

930 CELLS/ML

| MAR. 25, 1976<br>1300 HOURS | | _ORGANISM__NAME | _COMMON__NAME | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|---|
| | | CHLOROPHYTA | GREEN ALGAE | | | |
| | | .CHLOROPHYCEAE | | | | |
| | | ..VOLVOCALES | | | | |
| | | ...PHACOTACEAE | | | | |
| | | ....PTEROMONAS | | 30 | 3 | |
| | | | TOTALS | 30 | 3 | 0.000=DIVERSITY |
| | | CHRYSOPHYTA | | | | |
| | | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | | ..PENNALES | PENNATE | | | |
| | | ...FRAGILARIACEAE | | | | |
| | | ....H.ARCUS | | 30 | 3 | |
| | | ..CENTRALES | CENTRIC | | | |
| | | ...COSCINODISCACEAE | | | | |
| | | ....MELOSIRA | | 120 | 13 | |
| | | ..PENNALES | PENNATE | | | |
| | | ...ACHNANTHACEAE | | | | |
| | | ....ACHNANTHES | | 60 | 6 | |
| | | ...EUNOTIACEAE | | | | |
| | | ....EUNOTIA | | 60 | 6 | |
| | | ...FRAGILARIACEAE | | | | |
| | | ....SYNEDRA | | 30 | 3 | |
| | | ...GOMPHONEMATACEAE | | | | |
| | D | ....GOMPHONEMA | | 180 | 19 | |
| | | ...MERIDIONACEAE | | | | |
| | L | ....MERIDION | | | 0 | |
| | | ...NAVICULACEAE | NAVICULOID | | | |
| | | ....CALONEIS | | 30 | 3 | |
| | D | ....NAVICULA | | 300 | 32 | |
| | L | ....PINNULARIA | | | 0 | |
| | | ...NITZSCHIACEAE | | | | |
| | | ....NITZSCHIA | | 90 | 10 | |
| | | ...TABELLARIACEAE | | | | |
| | L | ....TABELLARIA | | | 0 | |
| | | | TOTALS | 900 | 95 | 2.724=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.206
CLASS 0.206
ORDER 0.951
FAMILY 2.686
GENERA 2.842

SAMPLING METHOD - EDI

12031000 CHEHALIS RIVER AT PORTER, WA--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

### IDENTIFICATION OF PHYTOPLANKTON

340 CELLS/ML

| APR. 19, 1976<br>1015 HOURS | | _ORGANISM__NAME | _COMMON__NAME | CELLS/ML | PER_CENT |
|---|---|---|---|---|---|
| | | CHLOROPHYTA | GREEN ALGAE | | |
| | | .CHLOROPHYCEAE | | | |
| | | ..ZYGNEMATALES | | | |
| | | ...DESMIDIACEAE | PLACODERM DESMIDS | | |
| | L | ....CLOSTERIUM | | | 0 |
| | | CHRYSOPHYTA | | | |
| | | .BACILLARIOPHYCEAE | DIATOMS | | |
| | | ..PENNALES | PENNATE | | |
| | | ...FRAGILARIACEAE | | | |
| | L | ....H.ARCUS | | | 0 |
| | | ..CENTRALES | CENTRIC | | |
| | | ...COSCINODISCACEAE | | | |
| | L | ....CYCLOTELLA | | | 0 |
| | L | ....MELOSIRA | | | 0 |
| | | ..PENNALES | PENNATE | | |
| | | ...ACHNANTHACEAE | | | |
| | D | ....ACHNANTHES | | 110 | 31 |
| | L | ....COCCONEIS | | | 0 |
| | | ....RHOICOSPHENIA | | 13 | 4 |
| | | ...CYMBELLACEAE | | | |
| | | ....CYMBELLA | | 13 | 4 |
| | L | ....EPITHEMIA | | | 0 |
| | | ...EUNOTIACEAE | | | |
| | | ....EUNOTIA | | 13 | 4 |
| | | ...FRAGILARIACEAE | | | |
| | | ....ASTERIONELLA | | 13 | 4 |
| | | ....FRAGILARIA | | 13 | 4 |
| | L | ....SYNEDRA | | | 0 |
| | | ...GOMPHONEMATACEAE | | | |
| | D | ....GOMPHONEMA | | 53 | 15 |
| | | ...NAVICULACEAE | NAVICULOID | | |
| | | ....NAVICULA | | 26 | 8 |
| | | ...NITZSCHIACEAE | | | |
| | D | ....NITZSCHIA | | 93 | 27 |
| | | | TOTALS | 340 | 101 |

2.637=DIVERSITY

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
FAMILY 2.386
GENERA 2.637

SAMPLING METHOD - EDI

## 12031000 CHEHALIS RIVER AT PORTER, WA--Continued

### QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

### IDENTIFICATION OF PHYTOPLANKTON

3.500 CELLS/ML

| MAY 24, 1976<br>1000 HOURS | _ORGANISM__NAME_______________ | _COMMON__NAME______ | | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|---|
| | CHLOROPHYTA | GREEN ALGAE | | | | |
| | .CHLOROPHYCEAE | | | | | |
| | ..CHLOROCOCCALES | | | | | |
| | ...OOCYSTACEAE | | | | | |
| | ....ANKISTRODESMUS | | | 21 | 1 | |
| | | | TOTALS | 21 | 1 | 0.000=DIVERSITY |
| | CHRYSOPHYTA | | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | | |
| | ..PENNALES | PENNATE | | | | |
| | ...FRAGILARIACEAE | | | | | |
| | ....M.ARCUS | | | 21 | 1 | |
| | ..CENTRALES | CENTRIC | | | | |
| | ...COSCINODISCACEAE | | | | | |
| | ....CYCLOTELLA | | | 42 | 1 | |
| | ....MELOSIRA | | | 210 | 6 | |
| | ..PENNALES | PENNATE | | | | |
| | ...ACHNANTHACEAE | | | | | |
| | ....ACHNANTHES | | | 120 | 4 | |
| | ...CYMBELLACEAE | | | | | |
| | ....CYMBELLA | | | 120 | 4 | |
| | ...DIATOMACEAE | | | | | |
| | ....DIATOMA | | | 21 | 1 | |
| | ...FRAGILARIACEAE | | | | | |
| D | ....ASTERIONELLA | | | 540 | 15 | |
| D | ....SYNEDRA | | | 810 | 23 | |
| | ...GOMPHONEMATACEAE | | | | | |
| | ....GOMPHONEMA | | | 120 | 4 | |
| | ...NAVICULACEAE | NAVICULOID | | | | |
| | ....NAVICULA | | | 190 | 5 | |
| | ...NITZSCHIACEAE | | | | | |
| | ....NITZSCHIA | | | 350 | 10 | |
| | | | TOTALS | 2.600 | 74 | 2.812=DIVERSITY |
| | CYANOPHYTA | BLUE-GREEN ALGAE | | | | |
| | .MYXOPHYCEAE | | | | | |
| | ..CHROOCOCCALES | COCCOID | | | | |
| | ...CHROOCOCCACEAE | | | | | |
| | ....ANACYSTIS | | | 170 | 5 | |
| | ..OSCILLATORIALES | FILAMENTOUS | | | | |
| | ...OSCILLATORIACEAE | | | | | |
| D | ....OSCILLATORIA | | | 730 | 21 | |
| | | | TOTALS | 890 | 26 | 0.693=DIVERSITY |
| | EUGLENOPHYTA | EUGLENOIDS | | | | |
| | .EUGLENOPHYCEAE | | | | | |
| | ..EUGLENALES | | | | | |
| | ...EUGLENACEAE | | | | | |
| | ....TRACHELOMONAS | | | 21 | 1 | |
| | | | TOTALS | 21 | 1 | 0.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:

PHYL/DIV 0.921
CLASS 0.921
ORDER 1.485
FAMILY 2.734
GENERA 3.156

SAMPLING METHOD - EDI

12031000 CHEHALIS RIVER AT PORTER, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

IDENTIFICATION OF PHYTOPLANKTON

1.700 CELLS/ML

| JUNE 28, 1976 1100 HOURS | _ORGANISM__NAME | _COMMON__NAME | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|
| | CHLOROPHYTA | GREEN ALGAE | | | |
| | .CHLOROPHYCEAE | | | | |
| | ..CHLOROCOCCALES | | | | |
| | ...MICRACTINIACEAE | | | | |
| | ....MICRACTINIUM | | 130 | 8 | |
| | ...OOCYSTACEAE | | | | |
| | ....ANKISTRODESMUS | | 33 | 2 | |
| | ....SELENASTRUM | | 33 | 2 | |
| | | TOTALS | 200 | 12 | 1.252=DIVERSITY |
| | CHRYSOPHYTA | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | ..CENTRALES | CENTRIC | | | |
| | ...COSCINODISCACEAE | | | | |
| D | ....CYCLOTELLA | | 270 | 16 | |
| | ....MELOSIRA | | 200 | 12 | |
| | ..PENNALES | PENNATE | | | |
| | ...ACHNANTHACEAE | | | | |
| | ....ACHNANTHES | | 130 | 8 | |
| | ....COCCONEIS | | 33 | 2 | |
| | ....RHOICOSPHENIA | | 130 | 8 | |
| | ...CYMBELLACEAE | | | | |
| D | ....CYMBELLA | | 330 | 20 | |
| | ...FRAGILARIACEAE | | | | |
| L | ....ASTERIONELLA | . | | 0 | |
| | ...GOMPHONEMATACEAE | | | | |
| | ....GOMPHONEMA | | 100 | 6 | |
| | ...NAVICULACEAE | NAVICULOID | | | |
| | ....NAVICULA | | 130 | 8 | |
| | ...NITZSCHIACEAE | | | | |
| | ....NITZSCHIA | | 100 | 6 | |
| | | TOTALS | 1.400 | 86 | 2.956=DIVERSITY |
| | .CHRYSOPHYCEAE | YELLOW-BROWN ALGAE | | | |
| | ..CHRYSOMONADALES | | | | |
| | ...MALLOMONADACEAE | | | | |
| | ....MALLOMONAS | | 33 | 2 | |
| | | TOTALS | 33 | 2 | 0.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.529
CLASS 0.667
ORDER 1.450
FAMILY 2.793
GENERA 3.359

SAMPLING METHOD - EDI

## 12031000 CHEHALIS RIVER AT PORTER, WA--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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                                IDENTIFICATION OF PHYTOPLANKTON

                                       24,000 CELLS/ML

JULY 27, 1976  _ORGANISM__NAME______________  _COMMON__NAME______  CELLS/ML     PER_CENT
  1300 HOURS
               CHLOROPHYTA                    GREEN ALGAE
               .CHLOROPHYCEAE
               ..CHLOROCOCCALES
               ...COELASTRACEAE
               ....COELASTRUM                                          810          3
               ...MICRACTINIACEAE
               ....MICRACTINIUM                                        400          2
               ...OOCYSTACEAE
               ....ANKISTRODESMUS                                      810          3
             D ....DICTYOSPHAERIUM                                  10,000         42
             L ....KIRCHNERIELLA                                                    0
             L ....TETRAEDRON                                                       0
               ..VOLVOCALES
               ...CHLAMYDOMONADACEAE
               ....CHLAMYDOMONAS                                    ___200         _1
                                                          TOTALS    13,000         51       1.115=DIVERSITY

               CHRYSOPHYTA
               .BACILLARIOPHYCEAE             DIATOMS
               ..CENTRALES                    CENTRIC
               ...COSCINODISCACEAE
             D ....CYCLOTELLA                                        7,800         32
               ..PENNALES                     PENNATE
               ...ACHNANTHACEAE
             L ....RHOICOSPHENIA                                                    0
               ...CYMBELLACEAE
               ....CYMBELLA                                            600          2
               ...GOMPHONEMATACEAE
             L ....GOMPHONEMA                                                       0
               ...NAVICULACEAE                NAVICULOID
               ....NAVICULA                                            200          1
               ...NITZSCHIACEAE
             L ....NITZSCHIA                                        ______         _0
                                                          TOTALS     8,900         35       0.777=DIVERSITY

               CYANOPHYTA                     BLUE-GREEN ALGAE
               .MYXOPHYCEAE
               ..CHROOCOCCALES                COCCOID
               ...CHROOCOCCACEAE
               ....ANACYSTIS                                        _2,800        _12
                                                          TOTALS     2,800         12       0.000=DIVERSITY

               NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
                     L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
                     ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
                     DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
                                     PHYL/DIV 1.381
                                        CLASS 1.381
                                        ORDER 1.640
                                       FAMILY 2.005
                                       GENERA 2.244
                     SAMPLING METHOD - EDI

                                         690 CELLS/ML

AUG. 23, 1976  _ORGANISM__NAME______________  _COMMON__NAME______  CELLS/ML     PER_CENT
  1200 HOURS
               CHRYSOPHYTA
               .BACILLARIOPHYCEAE             DIATOMS
               ..CENTRALES                    CENTRIC
               ...COSCINODISCACEAE
             D ....CYCLOTELLA                                          130         18
             L ....MELOSIRA                                                         0
               ..PENNALES                     PENNATE
               ...ACHNANTHACEAE
               ....ACHNANTHES                                           31          5
               ....COCCONEIS                                            63          9
               ....RHOICOSPHENIA                                        31          5
               ...CYMBELLACEAE
             D ....CYMBELLA                                            350         50
               ...DIATOMACEAE
             L ....DIATOMA                                                          0
               ...FRAGILARIACEAE
               ....SYNEDRA                                              31          5
               ...GOMPHONEMATACEAE
               ....GOMPHONEMA                                           31          5
               ...NAVICULACEAE                NAVICULOID
               ....NAVICULA                                             31          5
               ...NITZSCHIACEAE
             L ....NITZSCHIA                                        ______         _0
                                                          TOTALS       690        102       2.275=DIVERSITY

               NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
                     L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
                     ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
                     DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
                                        ORDER 0.684
                                       FAMILY 2.002
                                       GENERA 2.275
                     SAMPLING METHOD - EDI
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## 12031000 CHEHALIS RIVER AT PORTER, WA--Continued

### QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

### IDENTIFICATION OF PHYTOPLANKTON

980 CELLS/ML

| SEPT. 20, 1976<br>1030 HOURS | | _ORGANISM__NAME | _COMMON__NAME | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|---|
| | | CHLOROPHYTA | GREEN ALGAE | | | |
| | | .CHLOROPHYCEAE | | | | |
| | | ..CHLOROCOCCALES | | | | |
| | | ...SCENEDESMACEAE | | | | |
| | | ....CRUCIGENIA | | 120 | 12 | |
| | D | ....SCENEDESMUS | | 150 | 16 | |
| | | | TOTALS | 270 | 28 | 0.991=DIVERSITY |
| | | CHRYSOPHYTA | | | | |
| | | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | | ..CENTRALES | CENTRIC | | | |
| | | ...COSCINODISCACEAE | | | | |
| | | ....CYCLOTELLA | | 23 | 2 | |
| | | ....MELOSIRA | | 83 | 9 | |
| | | ..PENNALES | PENNATE | | | |
| | | ...ACHNANTHACEAE | | | | |
| | | ....ACHNANTHES | | 99 | 10 | |
| | | ....COCCONEIS | | 68 | 7 | |
| | | ....RHOICOSPHENIA | | 23 | 2 | |
| | | ...CYMBELLACEAE | | | | |
| | D | ....CYMBELLA | | 140 | 15 | |
| | | ...DIATOMACEAE | | | | |
| | | ....DIATOMA | | 30 | 3 | |
| | | ...FRAGILARIACEAE | | | | |
| | | ....SYNEDRA | | 8 | 1 | |
| | | ...GOMPHONEMATACEAE | | | | |
| | | ....GOMPHONEMA | | 23 | 2 | |
| | | ...NAVICULACEAE | NAVICULOID | | | |
| | | ....NAVICULA | | 76 | 8 | |
| | | ....NEIDIUM | | 8 | 1 | |
| | | ...NITZSCHIACEAE | | | | |
| | | ....NITZSCHIA | | 120 | 12 | |
| | | | TOTALS | 710 | 72 | 3.153=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.854
CLASS 0.854
ORDER 1.295
FAMILY 2.740
GENERA 3.404

SAMPLING METHOD - EDI

### QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

### PERIPHYTON

| Date | Length of exposure (days) | Biomass (g/m²) | | Chlorophyll a (mg/m²) | Chlorophyll b (mg/m²) | Biomass pigment ratio | Sampling method |
|---|---|---|---|---|---|---|---|
| | | Dry weight | Ash weight | | | | |
| Oct. 17 | 31 | 30 | 28 | 3.7 | 0.1 | 690 | Polyethylene strip |
| Feb. 17 | 27 | 0.9 | 0.9 | 0.0 | 0.0 | 0.0 | |
| May 24 | 33 | 30.5 | 24.7 | 55.7 | 0.594 | 100 | |

## 12035000 SATSOP RIVER NEAR SATSOP, WA

LOCATION.--Lat 47°00'03", long 123°29'37", in NE¼SE¼ sec.36, T.18 N., R.7 W., Grays Harbor County, Hydrologic Unit 17100104, in west pier of bridge on old U.S. Highway 410, 0.6 mi (1.0 km) west of Satsop, and 2.3 mi (3.7 km) upstream from mouth.

DRAINAGE AREA.--299 mi$^2$ (774 km$^2$).

PERIOD OF RECORD.--Water discharge March 1929 to current year. Chemical analyses July 1960 to September 1971, October 1974 to September 1975, sediment records November 1961 to June 1965 (partial-record station).

REVISED RECORDS.--WSP 1286: 1930-35(M), 1937(M). WSP 1716: Drainage area. WSP 1932: 1945, 1949(M), 1951(M), 1956-57(M), 1959(M).

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Mar. 19, 1938, nonrecording gage at site 60 ft (18 m) upstream at datum 20.9 ft (6.37 m) higher.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--47 years, 2,040 ft$^3$/s (57.77 m$^3$/s) 91.65 in/yr (2,353 mm/yr), 1,478,000 acre-ft/yr, (1,820 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 46,600 ft$^3$/s (1,320 m$^3$/s) Jan. 22, 1935, elevation, 38.9 ft (11.86 m), from floodmarks, present datum; minimum, 166 ft$^3$/s (4.70 m$^3$/s) Sept. 21, 1938; minimum elevation, 21.66 ft (6.602 m), present datum, Sept. 3-6, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1909 reached a stage of 37.1 ft (11.31 m), from high-water mark, at railroad bridge 300 ft (91 m) downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 13,500 ft$^3$/s (382 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 30 | 0500 | 26,200 | 742 | 33.35 | 10.165 | Dec. 26 | 1800 | *34,200 | 969 | *34.95 | 10.653 |
| Nov. 15 | 1000 | 16,200 | 459 | 30.74 | 9.370 | Jan. 15 | 1500 | 23,000 | 651 | 32.63 | 9.946 |
| Dec. 4 | 0900 | 30,600 | 867 | 34.21 | 10.427 | | | | | | |

Minimum discharge, 262 ft$^3$/s (7.42 m$^3$/s) Oct. 2, minimum gage height, 22.35 ft (6.812 m) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 268 | 6720 | 8960 | 4630 | 2530 | 3200 | 2860 | 1400 | 1350 | 516 | 363 | 360 |
| 2 | 265 | 5970 | 21100 | 3890 | 2290 | 2770 | 2500 | 1420 | 1130 | 516 | 360 | 354 |
| 3 | 339 | 7110 | 26100 | 3540 | 2090 | 2460 | 2280 | 1300 | 983 | 485 | 358 | 349 |
| 4 | 886 | 6140 | 24200 | 6430 | 1920 | 2210 | 2160 | 1200 | 878 | 538 | 351 | 341 |
| 5 | 981 | 4660 | 12700 | 7560 | 1770 | 2010 | 2110 | 1150 | 820 | 577 | 347 | 349 |
| 6 | 1740 | 4550 | 9320 | 5600 | 1650 | 1860 | 2090 | 1090 | 766 | 516 | 346 | 358 |
| 7 | 1050 | 6210 | 6100 | 5080 | 1550 | 1780 | 2020 | 1050 | 730 | 511 | 342 | 338 |
| 8 | 930 | 6010 | 5740 | 5580 | 1520 | 1680 | 2140 | 1040 | 700 | 962 | 342 | 327 |
| 9 | 1690 | 5280 | 5100 | 5340 | 1530 | 1610 | 2090 | 1030 | 670 | 955 | 340 | 318 |
| 10 | 2270 | 4320 | 4430 | 6760 | 1430 | 1710 | 1920 | 1030 | 659 | 760 | 335 | 314 |
| 11 | 1790 | 3670 | 3910 | 10200 | 2120 | 2060 | 2110 | 1120 | 648 | 665 | 328 | 311 |
| 12 | 1370 | 3470 | 3490 | 7090 | 7250 | 1830 | 2110 | 976 | 724 | 610 | 322 | 321 |
| 13 | 1100 | 3280 | 3260 | 5380 | 4640 | 1730 | 1800 | 906 | 694 | 572 | 338 | 317 |
| 14 | 994 | 9320 | 2940 | 8380 | 4680 | 1610 | 1710 | 857 | 643 | 543 | 430 | 461 |
| 15 | 2460 | 13300 | 3460 | 20000 | 4760 | 1500 | 1950 | 820 | 643 | 516 | 485 | 483 |
| 16 | 1960 | 8860 | 3490 | 15000 | 7270 | 1460 | 1710 | 778 | 820 | 495 | 555 | 419 |
| 17 | 7310 | 6560 | 3180 | 8590 | 7900 | 1720 | 1600 | 784 | 748 | 480 | 494 | 388 |
| 18 | 8080 | 5020 | 2930 | 5970 | 8090 | 4740 | 1530 | 748 | 688 | 465 | 429 | 372 |
| 19 | 5520 | 4090 | 2690 | 4590 | 6060 | 4180 | 1490 | 712 | 648 | 454 | 407 | 358 |
| 20 | 4530 | 3470 | 2490 | 3820 | 4570 | 3390 | 1760 | 688 | 621 | 450 | 599 | 343 |
| 21 | 3470 | 3060 | 2320 | 3280 | 3730 | 3070 | 1700 | 665 | 599 | 440 | 567 | 335 |
| 22 | 2720 | 3070 | 2280 | 3020 | 3140 | 3650 | 1550 | 637 | 577 | 434 | 485 | 333 |
| 23 | 2200 | 7000 | 3250 | 2700 | 3310 | 3730 | 1470 | 626 | 566 | 427 | 448 | 332 |
| 24 | 1860 | 7610 | 6560 | 2420 | 3640 | 8590 | 1860 | 637 | 555 | 414 | 455 | 323 |
| 25 | 2990 | 5260 | 6470 | 2210 | 3760 | 8640 | 1850 | 718 | 538 | 404 | 438 | 314 |
| 26 | 4630 | 6190 | 22600 | 2160 | 3600 | 6010 | 1670 | 676 | 522 | 394 | 418 | 309 |
| 27 | 7410 | 5240 | 14900 | 8380 | 3710 | 5560 | 1550 | 659 | 511 | 388 | 410 | 305 |
| 28 | 6210 | 4180 | 8300 | 5680 | 3960 | 4880 | 1490 | 637 | 495 | 380 | 418 | 300 |
| 29 | 13600 | 3490 | 7300 | 4100 | 3670 | 3980 | 1450 | 665 | 485 | 373 | 394 | 298 |
| 30 | 19400 | 4190 | 7660 | 3330 | --- | 3390 | 1420 | 962 | 485 | 369 | 380 | 295 |
| 31 | 8210 | --- | 5820 | 2860 | --- | 3260 | --- | 1140 | --- | 367 | 371 | --- |
| TOTAL | 118233 | 167300 | 243050 | 183570 | 108140 | 100270 | 55950 | 28121 | 20896 | 15976 | 12655 | 10325 |
| MEAN | 3814 | 5577 | 7840 | 5922 | 3729 | 3235 | 1865 | 907 | 697 | 515 | 408 | 344 |
| MAX | 19400 | 13300 | 26100 | 20000 | 8090 | 8640 | 2860 | 1420 | 1350 | 962 | 599 | 483 |
| MIN | 265 | 3060 | 2280 | 2160 | 1430 | 1460 | 1420 | 626 | 485 | 367 | 322 | 295 |
| CFSM | 12.8 | 18.7 | 26.2 | 19.8 | 12.5 | 10.8 | 6.24 | 3.03 | 2.33 | 1.72 | 1.36 | 1.15 |
| IN. | 14.71 | 20.81 | 30.24 | 22.84 | 13.45 | 12.48 | 6.96 | 3.50 | 2.60 | 1.99 | 1.57 | 1.28 |
| AC-FT | 234500 | 331800 | 482100 | 364100 | 214500 | 198900 | 111000 | 55780 | 41450 | 31690 | 25100 | 20480 |

CAL YR 1975 TOTAL 973439 MEAN 2667 MAX 26100 MIN 253 CFSM 8.92 IN 121.11 AC-FT 1931000
WTR YR 1976 TOTAL 1064486 MEAN 2908 MAX 26100 MIN 265 CFSM 9.73 IN 132.44 AC-FT 2111000

## 12035380 WYNOOCHEE LAKE NEAR GRISDALE, WA

LOCATION.--Lat 47°23'08", long 123°36'16", in NE¼NW¼ sec.20, T.22 N., R.7 W., Grays Harbor County, Hydrologic Unit 17100104, Olympic National Forest, in monolith No. 6, near center line axis of Wynoochee Dam on Wynoochee River, 2.0 mi (3.2 km) north of Grisdale, at river mile 51.8 (83.3 km).

DRAINAGE AREA.--41.0 $mi^2$ (106.2 $km^2$).

PERIOD OF RECORD.- October 1972 to current year.

GAGE.--Nonrecording gage. Datum of gage is at mean sea level (levels by Corps of Engineers). Prior to May 22, 1973, staff gage on upstream face of dam.

REMARKS.--Reservoir is formed by concrete gravity type dam with gate-type spillway; construction began in 1969; completed in 1972. Usable capacity, 67,288 acre-ft (83.0 $hm^3$) between elevation 690 ft (210.3 m), sluice invert level, and 800 ft (243.8 m), full pool elevation. Dead storage, 2,117 acre-ft (2.61 $hm^3$) below elevation 690 ft (210.3 m). Figures given herein represent total contents. Water is used for flood control, water supply and recreation.

COOPERATION.--Elevation at 0800 and capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 69,610 acre-ft (85.8 $hm^3$/yr), June 11, 1974, elevation, 800.18 ft (243.895 m); minimum observed, 12,210 acre-ft (15.1 $hm^3$/yr) Oct. 31, 1972, elevation, 725.7 ft (221.19 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 69,416 acre-ft (85.6 $hm^3$/yr), June 1, elevation, 800.01 ft (243.843 m); minimum observed, 34,277 acre-ft (42.3 $hm^3$/yr) Mar. 2, elevation, 762.42 ft (232.386 m).

ESTIMATED MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 776.34 | 45,654 | - |
| Oct. 31 | 766.11 | 37,137 | -8,517 |
| Nov. 30 | 765.58 | 36,720 | -417 |
| Dec. 31 | 764.05 | 35,529 | -1,191 |
| CAL YR 1975 | - | - | +2,040 |
| Jan. 31 | 763.99 | 35,482 | -47 |
| Feb. 29 | 762.65 | 34,453 | -1,029 |
| Mar. 31 | 776.10 | 45,443 | +10,990 |
| Apr. 30 | 791.15 | 59,846 | +14,403 |
| May 31 | 799.93 | 69,327 | +9,481 |
| June 30 | 795.04 | 63,949 | -5,378 |
| July 31 | 793.44 | 62,242 | -1,707 |
| Aug. 31 | 789.75 | 58,408 | -3,834 |
| Sept. 30 | 777.99 | 47,122 | -11,286 |
| WTR YR 1976 | - | - | +1,468 |

## 12035400 WYNOOCHEE RIVER NEAR GRISDALE, WA

LOCATION.--Lat 47°22'50", long 123°36'31", in NW¼SW¼ sec.20, T.22 N., R.7 W., Grays Harbor County, Hydrologic Unit 17100104, Olympic National Forest, on right bank 0.5 mi (0.8 km) downstream from Wynoochee Dam, 1.7 mi (2.7 km) north of Grisdale, 1.7 mi (2.7 km) downstream from Scatter Creek, and at mile 51.3 (82.5 km).

DRAINAGE AREA.--41.3 mi² (107.0 km²).

PERIOD OF RECORD.--October 1965 to current year. Sediment records February 1966 to May 1967.

GAGE.--Water-stage recorder. Altitude of gage is 630 ft (192 m), from topographic map. Prior to Nov. 3, 1967, at site 1,500 ft (457 m) upstream at different datum.

REMARKS.--Records good. Since August 1972, flow regulated by Wynoochee Lake (see sta 12035380) for flood control, during summer months to augment the natural river flow, and for the water supply for the city of Aberdeen. Some regulation from 1969 to August 1972 due to dam construction. No diversion above station.

AVERAGE DISCHARGE.--11 years, 565 ft³/s (16.00 m³/s), 185.78 in/yr (4,719 mm/yr), 409,300 acre-ft/yr (505 hm³/yr), adjusted for storage in Wynoochee Lake since October 1972.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft³/s (334 m³/s) Dec. 12, 1966, gage height, about 18.0 ft (5.49 m), computed from graph based on gage readings, site and datum then in use; minimum, 0.9 ft³/s (0.025 m³/s) Sept. 10, 12, 1974, gage height, 0.06 ft (0.018 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,340 ft³/s (265 m³/s) Dec. 4, gage height, 7.33 ft (2.234 m); minimum, 173 ft³/s (4.90 m³/s) July 13, gage height, 1.25 ft (0.381 m); minimum daily, 205 ft³/s (5.81 m³/s) Apr. 15-19, June 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 239 | 2550 | 1640 | 602 | 516 | 400 | 221 | 212 | 435 | 351 | 218 | 218 |
| 2 | 256 | 2520 | 2880 | 522 | 488 | 283 | 221 | 212 | 564 | 360 | 228 | 218 |
| 3 | 322 | 2500 | 4630 | 460 | 445 | 212 | 221 | 346 | 1150 | 415 | 218 | 218 |
| 4 | 412 | 2040 | 6000 | 499 | 410 | 212 | 221 | 299 | 1610 | 415 | 218 | 218 |
| 5 | 742 | 1760 | 4970 | 1540 | 295 | 212 | 225 | 212 | 908 | 415 | 218 | 218 |
| 6 | 946 | 1640 | 1510 | 1380 | 303 | 212 | 225 | 283 | 420 | 415 | 218 | 218 |
| 7 | 760 | 1480 | 1300 | 590 | 405 | 212 | 225 | 342 | 369 | 410 | 218 | 218 |
| 8 | 757 | 982 | 958 | 718 | 400 | 212 | 225 | 583 | 360 | 558 | 218 | 218 |
| 9 | 1080 | 984 | 757 | 720 | 303 | 212 | 225 | 852 | 364 | 635 | 218 | 307 |
| 10 | 1350 | 981 | 570 | 758 | 231 | 212 | 225 | 852 | 420 | 628 | 218 | 373 |
| 11 | 1340 | 900 | 528 | 812 | 522 | 212 | 228 | 609 | 364 | 615 | 218 | 425 |
| 12 | 1320 | 732 | 522 | 1030 | 1120 | 212 | 228 | 342 | 425 | 602 | 218 | 425 |
| 13 | 987 | 775 | 522 | 855 | 908 | 212 | 228 | 558 | 425 | 440 | 218 | 369 |
| 14 | 620 | 2620 | 516 | 1140 | 663 | 212 | 235 | 499 | 364 | 221 | 218 | 355 |
| 15 | 525 | 1940 | 445 | 2330 | 691 | 212 | 205 | 425 | 493 | 221 | 215 | 351 |
| 16 | 682 | 3310 | 364 | 3010 | 727 | 212 | 205 | 425 | 635 | 218 | 215 | 295 |
| 17 | 2070 | 1580 | 360 | 1600 | 1160 | 287 | 205 | 303 | 493 | 218 | 212 | 291 |
| 18 | 4330 | 650 | 360 | 1000 | 1300 | 1170 | 205 | 299 | 482 | 221 | 212 | 420 |
| 19 | 3760 | 695 | 355 | 836 | 804 | 976 | 205 | 299 | 420 | 221 | 218 | 420 |
| 20 | 1920 | 609 | 351 | 649 | 471 | 212 | 208 | 291 | 420 | 221 | 218 | 364 |
| 21 | 609 | 542 | 342 | 583 | 415 | 212 | 208 | 218 | 420 | 221 | 218 | 378 |
| 22 | 384 | 544 | 342 | 583 | 415 | 215 | 208 | 346 | 287 | 221 | 218 | 333 |
| 23 | 384 | 553 | 609 | 583 | 670 | 215 | 208 | 256 | 212 | 221 | 218 | 279 |
| 24 | 385 | 1910 | 1600 | 576 | 852 | 221 | 208 | 369 | 215 | 218 | 218 | 333 |
| 25 | 701 | 1720 | 1580 | 564 | 649 | 218 | 208 | 504 | 299 | 218 | 218 | 420 |
| 26 | 828 | 1140 | 3550 | 466 | 493 | 218 | 208 | 299 | 420 | 218 | 218 | 415 |
| 27 | 831 | 702 | 3950 | 1850 | 493 | 218 | 208 | 510 | 420 | 218 | 218 | 291 |
| 28 | 1480 | 672 | 1480 | 1490 | 488 | 218 | 208 | 466 | 283 | 218 | 218 | 212 |
| 29 | 3170 | 571 | 1130 | 622 | 488 | 218 | 212 | 333 | 205 | 218 | 218 | 212 |
| 30 | 4020 | 573 | 1160 | 589 | --- | 221 | 212 | 333 | 208 | 218 | 218 | 212 |
| 31 | 2580 | --- | 832 | 516 | --- | 221 | --- | 231 | --- | 218 | 218 | --- |
| TOTAL | 39790 | 40175 | 46113 | 29473 | 17125 | 8691 | 6474 | 12108 | 14090 | 10207 | 6750 | 9224 |
| MEAN | 1284 | 1339 | 1488 | 951 | 591 | 280 | 216 | 391 | 470 | 329 | 218 | 307 |
| MAX | 4330 | 3310 | 6000 | 3010 | 1300 | 1170 | 235 | 852 | 1610 | 635 | 228 | 425 |
| MIN | 239 | 542 | 342 | 460 | 231 | 212 | 205 | 212 | 205 | 218 | 212 | 212 |
| AC-FT | 78920 | 79690 | 91470 | 58460 | 33970 | 17240 | 12840 | 24020 | 27950 | 20250 | 13390 | 18300 |
| † | -8,517 | -417 | -1,191 | -47 | -1,029 | +10,990 | +14,403 | +9,481 | -5,378 | -1,707 | -3,834 | -11,286 |
| MEAN‡ | 1,145 | 1,333 | 1,468 | 950 | 572 | 459 | 458 | 545 | 379 | 301 | 155 | 118 |
| CFSM‡ | 27.7 | 32.3 | 35.5 | 23.0 | 13.8 | 11.1 | 11.1 | 13.2 | 9.18 | 7.29 | 3.75 | 2.86 |
| IN.‡ | 31.96 | 35.99 | 40.99 | 26.52 | 14.95 | 12.82 | 12.37 | 15.21 | 10.25 | 8.42 | 4.34 | 3.18 |
| AC-FT‡ | 70,400 | 79,270 | 90,280 | 58,410 | 32,940 | 28,230 | 27,240 | 33,500 | 22,570 | 18,540 | 9,556 | 7,014 |

CAL YR 1975: TOTAL 230,231 MEAN 631 MAX 6,000 MIN 178 AC-FT 456,700
DO.....: MEAN‡ 633 CFSM‡ 15.3 IN.‡208.25 AC-FT‡ 458,700
WTR YR 1976: TOTAL 240,220 MEAN 656 MAX 6,000 MIN 205 AC-FT 476,500
DO.....: MEAN‡ 659 CFSM‡ 16.0 IN.‡217.01 AC-FT‡ 478,000

† Change in contents, in acre-feet, in Wynoochee Lake.
‡ Adjusted for change in reservoir contents.

## 12035450 BIG CREEK NEAR GRISDALE, WA

LOCATION.--Lat 47°22'28", long 123°38'08", in SE¼SE¼ sec.24, T.22 N., R.8 W., Grays Harbor County, Hydrologic Unit 17100104, Olympic National Forest, on left bank 280 ft (85 m) upstream from road bridge, 1.5 mi (2.4 km) northwest of Grisdale, and 0.6 mi (1.0 m) upstream from mouth.

DRAINAGE AREA.--9.57 $mi^2$ (24.79 $km^2$).

PERIOD OF RECORD.--August 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 600 ft (183 m), from topographic map.

REMARKS.--Records good. No regulation or diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,760 $ft^3/s$ (78.2 $m^3/s$) Dec. 26, 1975, gage height, 8.89 ft (2.710 m), from rating curve extended above 1,500 $ft^3/s$ (42.5 $m^3/s$); minimum, 10 $ft^3/s$ (0.28 $m^3/s$) part or all of each day Oct. 15-19, 21-26, 1974; minimum gage height, 2.08 ft (0.634 m) Oct. 31, Nov. 1, 1972.

EXTREMES FOR CURRENT YEAR.-- Peak discharges above base of 1,100 $ft^3/s$ (31.2 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 0800 | 1,730 | 49.0 | 7.48 | 2.280 | Dec. 26 | 0600 | *2,760 | 78.2 | *8.89 | 2.710 |
| Oct. 29 | 1900 | 1,410 | 39.9 | 6.97 | 2.124 | Jan. 15 | 0200 | 1,230 | 34.8 | 6.87 | 2.094 |
| Nov. 15 | 0200 | 1,520 | 43.0 | 7.15 | 2.179 | Jan. 27 | 0200 | 1,250 | 35.4 | 6.90 | 2.103 |
| Dec. 2 | 0600 | 2,510 | 71.1 | 8.58 | 2.615 | Feb. 11 | 2100 | 1,170 | 33.1 | 6.77 | 2.063 |

Minimum discharge, 13 $ft^3/s$ (0.37 $m^3/s$) Oct. 2, gage height, 2.92 ft (0.890 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 14 | 360 | 650 | 120 | 65 | 79 | 122 | 94 | 77 | 30 | 20 | 22 |
| 2 | 14 | 367 | 1730 | 100 | 57 | 72 | 106 | 86 | 63 | 29 | 20 | 21 |
| 3 | 48 | 402 | 1380 | 100 | 52 | 68 | 108 | 72 | 53 | 29 | 19 | 21 |
| 4 | 87 | 324 | 755 | 250 | 47 | 63 | 124 | 65 | 48 | 45 | 19 | 21 |
| 5 | 243 | 257 | 300 | 160 | 43 | 59 | 136 | 60 | 44 | 36 | 19 | 22 |
| 6 | 136 | 357 | 210 | 110 | 40 | 56 | 138 | 57 | 42 | 32 | 19 | 21 |
| 7 | 80 | 367 | 165 | 110 | 36 | 54 | 132 | 54 | 40 | 39 | 18 | 20 |
| 8 | 87 | 262 | 190 | 150 | 37 | 54 | 163 | 54 | 39 | 120 | 18 | 20 |
| 9 | 230 | 192 | 148 | 120 | 34 | 59 | 146 | 53 | 36 | 65 | 18 | 19 |
| 10 | 187 | 140 | 116 | 250 | 34 | 96 | 134 | 54 | 35 | 49 | 17 | 19 |
| 11 | 128 | 126 | 94 | 180 | 436 | 98 | 183 | 53 | 37 | 43 | 17 | 19 |
| 12 | 93 | 128 | 79 | 130 | 596 | 79 | 146 | 48 | 43 | 39 | 17 | 19 |
| 13 | 74 | 195 | 68 | 110 | 288 | 74 | 118 | 45 | 40 | 35 | 19 | 18 |
| 14 | 153 | 628 | 60 | 620 | 357 | 68 | 112 | 43 | 37 | 33 | 22 | 31 |
| 15 | 205 | 862 | 72 | 980 | 294 | 66 | 112 | 41 | 43 | 31 | 25 | 29 |
| 16 | 300 | 327 | 66 | 536 | 488 | 81 | 100 | 41 | 56 | 30 | 30 | 24 |
| 17 | 1340 | 222 | 56 | 333 | 385 | 326 | 94 | 40 | 47 | 29 | 23 | 23 |
| 18 | 336 | 173 | 51 | 225 | 382 | 600 | 90 | 37 | 43 | 28 | 21 | 22 |
| 19 | 351 | 146 | 47 | 178 | 234 | 261 | 90 | 36 | 40 | 26 | 26 | 21 |
| 20 | 168 | 126 | 43 | 146 | 170 | 170 | 118 | 35 | 37 | 26 | 44 | 20 |
| 21 | 109 | 120 | 41 | 128 | 136 | 144 | 104 | 34 | 36 | 25 | 31 | 20 |
| 22 | 77 | 178 | 47 | 120 | 126 | 333 | 88 | 33 | 34 | 25 | 27 | 20 |
| 23 | 57 | 600 | 190 | 108 | 231 | 200 | 86 | 32 | 33 | 24 | 26 | 19 |
| 24 | 46 | 350 | 448 | 96 | 170 | 375 | 134 | 39 | 32 | 23 | 29 | 18 |
| 25 | 166 | 200 | 291 | 88 | 140 | 315 | 114 | 40 | 31 | 23 | 26 | 18 |
| 26 | 254 | 350 | 1370 | 170 | 122 | 218 | 98 | 40 | 30 | 22 | 25 | 18 |
| 27 | 318 | 240 | 280 | 632 | 116 | 193 | 90 | 40 | 29 | 22 | 25 | 17 |
| 28 | 276 | 160 | 200 | 168 | 104 | 155 | 94 | 40 | 29 | 21 | 25 | 17 |
| 29 | 1050 | 120 | 300 | 112 | 92 | 132 | 92 | 56 | 28 | 21 | 24 | 17 |
| 30 | 544 | 200 | 220 | 86 | --- | 134 | 94 | 76 | 29 | 20 | 23 | 17 |
| 31 | 262 | --- | 160 | 74 | --- | 153 | --- | 76 | --- | 20 | 23 | --- |
| TOTAL | 7433 | 8479 | 9827 | 6690 | 5312 | 4835 | 3466 | 1574 | 1211 | 1040 | 715 | 613 |
| MEAN | 240 | 283 | 317 | 216 | 183 | 156 | 116 | 50.8 | 40.4 | 33.5 | 23.1 | 20.4 |
| MAX | 1340 | 862 | 1730 | 980 | 596 | 600 | 183 | 94 | 77 | 120 | 44 | 31 |
| MIN | 14 | 120 | 41 | 74 | 34 | 54 | 86 | 32 | 28 | 20 | 17 | 17 |
| CFSM | 25.1 | 29.6 | 33.1 | 22.6 | 19.1 | 16.3 | 12.1 | 5.31 | 4.22 | 3.50 | 2.41 | 2.13 |
| IN. | 28.89 | 32.96 | 38.19 | 26.00 | 20.65 | 18.79 | 13.47 | 6.12 | 4.71 | 4.04 | 2.78 | 2.38 |
| AC-FT | 14740 | 16820 | 19490 | 13270 | 10540 | 9590 | 6870 | 3120 | 2400 | 2060 | 1420 | 1220 |

CAL YR 1975 TOTAL 49574 MEAN 136 MAX 1730 MIN 11 CFSM 14.2 IN 192.68 AC-FT 98330
WTR YR 1976 TOTAL 51195 MEAN 140 MAX 1730 MIN 14 CFSM 14.6 IN 198.98 AC-FT 101500

## 12036000 WYNOOCHEE RIVER ABOVE SAVE CREEK, NEAR ABERDEEN, WA

LOCATION.--Lat 47°17'57", long 123°39'07", in NE¼NE¼ sec.23, T.21 N., R.8 W., Grays Harbor County, Hydrologic Unit 17100104, on left bank 0.8 mi (1.3 km) upstream from Save Creek, 2.5 mi (4.0 km) downstream from Oxbow Dam site, 11.0 mi (17.7 km) downstream from Wynoochee Dam, 23.5 mi (37.8 km) northeast of city hall in Aberdeen, and at mile 40.6 (65.3 km).

DRAINAGE AREA.--74.1 mi² (191.9 km²).

PERIOD OF RECORD.--May 1925 to current year. Published as "at Oxbow, near Aberdeen" 1925-52, where drainage area was 70.7 mi² (183.1 km²). Records published for both sites October 1951 to October 1952.

REVISED RECORDS.--WSP 1346: 1952. WSP 1736: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 401 ft (122.2 m) above mean sea level, stadia traverse. Prior to Nov. 7, 1925, nonrecording gage at site 2.3 mi (3.7 km) upstream at different datum. Nov. 7, 1925, to Sept. 3, 1947, water-stage recorder at site 1.5 mi (2.4 km) upstream at datum 444.0 ft (135.33 m) above mean sea level (levels by city of Aberdeen). Sept. 4, 1947, to Oct. 13, 1952, water-stage recorder at site 2.5 mi (4.0 km) upstream at datum about 91 ft (27.7 m) higher.

REMARKS.--Records good. Since August 1972, flow regulated by Wynoochee Lake (see sta 12035380) for flood control, during summer months to augment the natural river flow, and for the water supply for the city of Aberdeen. Some regulation from 1969 to August 1972 due to dam construction. No diversion above station.

AVERAGE DISCHARGE.--51 years, 830 ft³/s (23.51 m³/s), 152.11 in/yr (3,864 mm/yr), 601,300 acre-ft/yr (741 hm³/yr), adjusted for storage in Wynoochee Lake since October 1972.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,600 ft³/s (668 m³/s) Dec. 9, 1956, gage height, 16.95 ft (5.166 m), from rating curve extended above 9,000 ft³/s (255 m³/s); minimum, 57 ft³/s (1.61 m³/s) Sept. 3, 4, 5, 1972, gage height, 4.43 ft (1.350 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,000 ft³/s (283 m³/s) Dec. 4, gage height, 11.59 ft (3.533 m); minimum, 265 ft³/s (7.50 m³/s) Sept. 28, 29, 30; minimum gage height, 5.10 ft (1.554 m) Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 310 | 3650 | 2950 | 1230 | 834 | 770 | 592 | 444 | 634 | 402 | 280 | 285 |
| 2 | 320 | 3570 | 6890 | 1080 | 794 | 613 | 550 | 438 | 683 | 432 | 285 | 285 |
| 3 | 434 | 3660 | 8610 | 1030 | 722 | 494 | 529 | 522 | 1180 | 494 | 280 | 285 |
| 4 | 604 | 3070 | 8410 | 1730 | 662 | 468 | 543 | 522 | 1700 | 536 | 275 | 280 |
| 5 | 1050 | 2450 | 6650 | 2380 | 550 | 456 | 550 | 390 | 1210 | 508 | 275 | 290 |
| 6 | 1250 | 2570 | 2470 | 2220 | 494 | 444 | 543 | 432 | 557 | 494 | 275 | 285 |
| 7 | 952 | 2640 | 2150 | 1300 | 613 | 438 | 529 | 480 | 487 | 529 | 275 | 280 |
| 8 | 969 | 1860 | 1780 | 1490 | 620 | 432 | 571 | 690 | 468 | 810 | 275 | 275 |
| 9 | 1460 | 1670 | 1500 | 1450 | 515 | 432 | 557 | 1010 | 462 | 802 | 275 | 320 |
| 10 | 1690 | 1520 | 1190 | 2010 | 432 | 515 | 557 | 1040 | 529 | 762 | 275 | 426 |
| 11 | 1570 | 1430 | 1070 | 2060 | 1360 | 508 | 641 | 842 | 474 | 738 | 275 | 480 |
| 12 | 1510 | 1270 | 1030 | 1820 | 2400 | 468 | 585 | 480 | 550 | 714 | 270 | 480 |
| 13 | 1220 | 1350 | 975 | 1570 | 1630 | 456 | 536 | 669 | 536 | 592 | 285 | 426 |
| 14 | 952 | 3890 | 948 | 2720 | 1430 | 438 | 557 | 662 | 468 | 320 | 300 | 487 |
| 15 | 1050 | 3890 | 930 | 4920 | 1440 | 432 | 536 | 557 | 599 | 315 | 300 | 402 |
| 16 | 1170 | 4240 | 794 | 4360 | 1890 | 450 | 501 | 557 | 794 | 310 | 310 | 402 |
| 17 | 4600 | 2450 | 754 | 2560 | 2120 | 770 | 487 | 456 | 662 | 305 | 290 | 325 |
| 18 | 5550 | 1190 | 722 | 1660 | 2270 | 2010 | 474 | 402 | 606 | 300 | 280 | 480 |
| 19 | 4960 | 1160 | 698 | 1390 | 1560 | 1630 | 480 | 414 | 543 | 300 | 305 | 480 |
| 20 | 2890 | 1040 | 676 | 1150 | 1070 | 722 | 543 | 396 | 529 | 295 | 360 | 420 |
| 21 | 1230 | 920 | 662 | 1000 | 890 | 655 | 508 | 330 | 529 | 295 | 315 | 438 |
| 22 | 832 | 1030 | 676 | 984 | 850 | 922 | 474 | 396 | 420 | 295 | 300 | 420 |
| 23 | 758 | 2060 | 1220 | 922 | 1170 | 794 | 480 | 408 | 310 | 290 | 300 | 335 |
| 24 | 723 | 2470 | 2750 | 890 | 1340 | 1410 | 564 | 390 | 310 | 290 | 310 | 355 |
| 25 | 1300 | 2400 | 2510 | 866 | 1160 | 1160 | 522 | 669 | 340 | 290 | 300 | 474 |
| 26 | 1650 | 2280 | 6160 | 930 | 939 | 1000 | 487 | 468 | 501 | 285 | 295 | 474 |
| 27 | 1920 | 1430 | 5980 | 3050 | 957 | 906 | 468 | 536 | 501 | 285 | 300 | 372 |
| 28 | 2310 | 1250 | 2620 | 2260 | 930 | 786 | 456 | 676 | 402 | 285 | 300 | 270 |
| 29 | 5590 | 1040 | 2240 | 1100 | 882 | 690 | 450 | 450 | 290 | 285 | 295 | 270 |
| 30 | 6360 | 1330 | 2230 | 1010 | --- | 662 | 450 | 585 | 295 | 280 | 290 | 265 |
| 31 | 3650 | --- | 1640 | 874 | --- | 669 | --- | 450 | --- | 280 | 290 | --- |
| TOTAL | 60834 | 64780 | 79885 | 54016 | 32524 | 22600 | 15720 | 16761 | 17569 | 13118 | 9040 | 11066 |
| MEAN | 1962 | 2159 | 2577 | 1742 | 1122 | 729 | 524 | 541 | 586 | 423 | 292 | 369 |
| MAX | 6360 | 4240 | 8610 | 4920 | 2400 | 2010 | 641 | 1040 | 1700 | 810 | 360 | 487 |
| MIN | 310 | 920 | 662 | 866 | 432 | 432 | 450 | 330 | 290 | 280 | 270 | 265 |
| AC-FT | 120700 | 128500 | 158500 | 107100 | 64510 | 44830 | 31180 | 33250 | 34850 | 26020 | 17930 | 21950 |
| † | -8,517 | -417 | -1,191 | -47 | -1,029 | +10,990 | +14,403 | +9,481 | -5,378 | -1,707 | -3,834 | -11,286 |
| MEAN‡ | 1,824 | 2,153 | 2,558 | 1,741 | 1,103 | 908 | 766 | 695 | 495 | 395 | 229 | 179 |
| CFSM‡ | 24.6 | 29.1 | 34.5 | 23.5 | 14.9 | 12.3 | 10.3 | 9.38 | 6.68 | 5.33 | 3.09 | 2.42 |
| IN.‡ | 28.39 | 32.41 | 39.80 | 27.10 | 16.06 | 14.12 | 11.53 | 10.81 | 7.46 | 6.15 | 3.57 | 2.70 |
| AC-FT‡ | 112,200 | 128,100 | 157,300 | 107,100 | 63,480 | 55,820 | 45,580 | 42,730 | 29,470 | 24,310 | 14,100 | 10,660 |

```
CAL YR 1975:  TOTAL  376,990   MEAN  1,033   MAX  8,610   MIN  270   AC-FT  747,800
    DO.....:  MEAN‡    1,035   CFSM‡  14.0   IN‡ 189.70   AC-FT‡  749,800
WTR YR 1975:  TOTAL  397,913   MEAN  1,087   MAX  8,610   MIN  265   AC-FT  789,300
    DO....:   MEAN‡    1,090   CFSM‡  14.7   IN‡ 200.07   AC-FT‡  790,800
```

† Change in contents, in acre-feet, in Wynoochee Lake, furnished by Corps of Engineers

‡ Adjusted for change in contents in Wynoochee Lake.

## 12036650 ANDERSON CREEK NEAR MONTESANO, WA

LOCATION.--Lat 47°07'02", long 123°39'17", in SE¼NE¼ sec.22, T.19 N., R.8 W., Grays Harbor County, Hydrologic Unit 17100104, on right bank 70 ft (21 m) upstream from Wynoochee Valley road bridge, 3.1 mi (5.0 km) upstream from Helm Creek, 9.6 mi (15.4 km) northwest of Montesano, and 1 mi (1.6 km) upstream from mouth.

DRAINAGE AREA.--2.72 mi² (7.04 km²).

PERIOD OF RECORD.--August 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 150 ft (46 m), from topographic map.

REMARKS.--Records fair except those for period of no gage-height record, Aug. 6 to Sept. 21, which are poor. No regulation or diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 299 ft³/s (8.47 m³/s) Dec. 26, 1975, gage height, 8.46 ft (2.579 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 1645 | 110 | 3.12 | 6.03 | 1.838 | Dec. 26 | 0500 | *299 | 8.47 | *8.46 | 2.579 |
| Oct. 29 | 1515 | 237 | 6.71 | 7.92 | 2.414 | Jan. 15 | 0645 | 174 | 4.93 | 7.15 | 2.179 |
| Nov. 15 | 0330 | 132 | 3.74 | 6.49 | 1.978 | Feb. 17 | 1115 | 107 | 3.03 | 5.95 | 1.814 |
| Dec. 2 | unknown | 215 | 6.09 | 7.69 | 2.344 | Mar. 24 | 0745 | 150 | 4.25 | 6.79 | 2.070 |

Minimum daily discharge, 0.40 ft³/s (0.011 m³/s) Aug. 9-12.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.0 | 30 | 50 | 25 | 15 | 27 | 17 | 4.8 | 7.8 | 1.1 | .53 | .85 |
| 2 | 1.0 | 26 | 130 | 21 | 12 | 23 | 14 | 4.5 | 6.0 | 1.1 | .58 | .85 |
| 3 | 4.0 | 27 | 90 | 18 | 10 | 19 | 12 | 4.0 | 5.0 | .93 | .58 | .80 |
| 4 | 4.3 | 25 | 65 | 35 | 8.7 | 16 | 10 | 3.8 | 4.3 | 1.5 | .53 | .80 |
| 5 | 11 | 21 | 50 | 37 | 7.5 | 14 | 8.7 | 3.5 | 3.8 | 1.0 | .53 | .80 |
| 6 | 6.6 | 23 | 40 | 25 | 6.6 | 12 | 8.1 | 3.0 | 3.3 | .84 | .50 | .90 |
| 7 | 5.5 | 29 | 33 | 24 | 6.0 | 10 | 7.2 | 2.6 | 3.0 | 1.2 | .45 | .85 |
| 8 | 6.6 | 32 | 29 | 26 | 6.3 | 8.7 | 7.2 | 2.4 | 2.8 | 4.3 | .45 | .80 |
| 9 | 22 | 31 | 26 | 24 | 6.6 | 7.8 | 6.3 | 2.2 | 2.4 | 1.8 | .40 | .75 |
| 10 | 21 | 26 | 24 | 32 | 6.0 | 9.0 | 5.8 | 3.3 | 2.2 | 1.6 | .40 | .75 |
| 11 | 15 | 21 | 22 | 39 | 18 | 7.8 | 6.6 | 3.3 | 2.4 | 1.3 | .40 | .70 |
| 12 | 11 | 17 | 20 | 32 | 34 | 7.2 | 5.5 | 2.6 | 2.8 | 1.1 | .40 | .70 |
| 13 | 8.7 | 21 | 19 | 29 | 29 | 6.9 | 5.0 | 2.4 | 2.1 | 1.1 | .50 | .70 |
| 14 | 11 | 55 | 18 | 57 | 28 | 6.9 | 6.6 | 2.2 | 1.8 | 1.0 | .70 | 2.0 |
| 15 | 21 | 95 | 20 | 162 | 28 | 6.0 | 8.4 | 2.1 | 3.0 | .93 | 1.0 | 1.6 |
| 16 | 20 | 50 | 25 | 76 | 53 | 5.8 | 6.9 | 2.0 | 3.8 | .84 | 1.5 | 1.4 |
| 17 | 67 | 38 | 22 | 41 | 73 | 7.5 | 6.9 | 2.6 | 2.4 | .84 | 1.1 | 1.3 |
| 18 | 44 | 31 | 19 | 30 | 52 | 19 | 6.6 | 2.2 | 1.8 | .75 | 1.0 | 1.2 |
| 19 | 40 | 25 | 16 | 23 | 37 | 21 | 6.6 | 2.0 | 1.6 | .69 | .90 | 1.1 |
| 20 | 30 | 20 | 14 | 19 | 29 | 25 | 7.8 | 1.8 | 1.5 | .69 | 2.5 | 1.1 |
| 21 | 25 | 16 | 12 | 15 | 23 | 24 | 6.9 | 1.7 | 1.5 | .69 | 1.7 | 1.0 |
| 22 | 22 | 16 | 11 | 15 | 19 | 26 | 6.6 | 1.7 | 1.4 | .75 | 1.3 | 1.0 |
| 23 | 20 | 27 | 23 | 12 | 18 | 29 | 6.9 | 1.6 | 1.5 | .69 | 1.1 | 1.1 |
| 24 | 16 | 32 | 40 | 10 | 23 | 100 | 9.4 | 2.2 | 1.4 | .58 | 1.2 | 1.0 |
| 25 | 28 | 28 | 40 | 9.0 | 28 | 53 | 8.4 | 2.4 | 1.3 | .53 | 1.1 | .93 |
| 26 | 45 | 35 | 180 | 15 | 29 | 42 | 8.1 | 2.4 | 1.1 | .53 | 1.0 | .84 |
| 27 | 54 | 26 | 100 | 51 | 31 | 40 | 7.5 | 2.1 | 1.0 | .53 | 1.0 | .75 |
| 28 | 41 | 21 | 60 | 36 | 31 | 37 | 6.6 | 2.0 | .93 | .48 | 1.1 | .69 |
| 29 | 129 | 18 | 40 | 27 | 32 | 31 | 5.8 | 3.3 | .93 | .44 | 1.0 | .63 |
| 30 | 109 | 22 | 40 | 21 | --- | 25 | 5.3 | 4.5 | 1.0 | .48 | .95 | .69 |
| 31 | 42 | --- | 30 | 18 | --- | 21 | --- | 8.4 | --- | .53 | .90 | --- |
| TOTAL | 881.7 | 884 | 1308 | 1004.0 | 699.7 | 687.6 | 234.7 | 89.6 | 75.86 | 30.84 | 27.30 | 28.58 |
| MEAN | 28.4 | 29.5 | 42.2 | 32.4 | 24.1 | 22.2 | 7.82 | 2.89 | 2.53 | .99 | .88 | .95 |
| MAX | 129 | 95 | 180 | 162 | 73 | 100 | 17 | 8.4 | 7.8 | 4.3 | 2.5 | 2.0 |
| MIN | 1.0 | 16 | 11 | 9.0 | 6.0 | 5.8 | 5.0 | 1.6 | .93 | .44 | .40 | .63 |
| CFSM | 10.4 | 10.8 | 15.5 | 11.9 | 8.86 | 8.16 | 2.87 | 1.06 | .93 | .36 | .32 | .35 |
| IN. | 12.05 | 12.09 | 17.88 | 13.73 | 9.57 | 9.40 | 3.21 | 1.22 | 1.04 | .42 | .37 | .39 |
| AC-FT | 1750 | 1750 | 2590 | 1990 | 1390 | 1360 | 466 | 178 | 150 | 61 | 54 | 57 |

CAL YR 1975 TOTAL 6544.49 MEAN 17.9 MAX 180 MIN 0 CFSM 6.58 IN 89.47 AC-FT 12980
WTR YR 1976 TOTAL 5951.88 MEAN 16.3 MAX 180 MIN .40 CFSM 5.99 IN 81.37 AC-FT 11810

## 12037400 WYNOOCHEE RIVER ABOVE BLACK CREEK, NEAR MONTESANO, WA

LOCATION.--Lat 47°00'42", long 123°39'15", in SE¼SE¼ sec.27, T.18 N., R.8 W., Grays Harbor County, Hydrologic Unit 17100104, on left bank 2,000 ft (610 m) upstream from Black Creek, 3.5 mi (5.6 km) northwest of Montesano, and at mile 5.9 (9.5 km).

DRAINAGE AREA.--155 mi² (401 km²).

### WATER DISCHARGE RECORDS

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records good. City of Aberdeen diverted about 111 ft³/s (3.14 m³s) for municipal supply at intake 2.2 mi (3.5 km) upstream. Other small diversions for irrigation and domestic use. From August 1972, flow regulated by Wynoochee Dam, 45.7 mi (73.5 km) upstream, for flood control, during summer months to augment the natural river flow, and for the water supply for the city of Aberdeen. Some regulation from 1969 to August 1972 due to dam construction.

AVERAGE DISCHARGE.--20 years, 1,339 ft³/s (37.92 m³/s) 970,100 acre-ft/yr (1,200 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,500 ft³/s (722 m³/s) Jan. 19, 1968; maximum gage height, 20.54 ft (6.261 m) Dec. 10, 1956; minimum discharge, 3.0 ft³/s (0.085 m³/s) part or all of each day Aug. 26-30, 1967, gage height, 2.86 ft (0.872 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,900 ft³/s (252 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 2315 | 9,840 | 279 | 11.83 | 3.606 | Dec. 3 | 0800 | *16,400 | 464 | *16.11 | 4.910 |
| Oct. 30 | 0500 | 14,300 | 405 | 14.78 | 4.505 | Dec. 26 | 1500 | 14,300 | 405 | 14.83 | 4.520 |
| Nov. 15 | 0900 | 10,500 | 297 | 12.25 | 3.734 | Jan. 15 | 2300 | 11,900 | 337 | 13.23 | 4.033 |

Minimum discharge, 174 ft³/s (4.93 m³/s) Aug. 13, Sept. 30, gage height, 3.17 ft (0.966 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 201 | 5260 | 5800 | 2220 | 1370 | 1650 | 1230 | 566 | 711 | 300 | 197 | 207 |
| 2 | 197 | 4930 | 12900 | 1870 | 1270 | 1340 | 1070 | 560 | 766 | 428 | 197 | 204 |
| 3 | 308 | 5280 | 14800 | 1690 | 1150 | 1110 | 980 | 520 | 871 | 411 | 200 | 200 |
| 4 | 542 | 4730 | 13300 | 4030 | 1040 | 959 | 917 | 662 | 1450 | 529 | 190 | 197 |
| 5 | 840 | 3610 | 10600 | 4180 | 931 | 868 | 882 | 515 | 1750 | 517 | 190 | 218 |
| 6 | 1600 | 3700 | 4570 | 4240 | 746 | 798 | 861 | 460 | 922 | 486 | 190 | 228 |
| 7 | 1170 | 4350 | 3700 | 2820 | 791 | 758 | 812 | 490 | 612 | 506 | 187 | 221 |
| 8 | 1110 | 3410 | 3310 | 2760 | 854 | 722 | 833 | 584 | 532 | 806 | 187 | 207 |
| 9 | 1600 | 2950 | 2840 | 2750 | 868 | 698 | 805 | 882 | 493 | 878 | 187 | 187 |
| 10 | 2260 | 2500 | 2240 | 3380 | 692 | 740 | 746 | 1050 | 479 | 812 | 183 | 276 |
| 11 | 2030 | 2220 | 1880 | 4480 | 1060 | 826 | 812 | 1080 | 526 | 752 | 180 | 320 |
| 12 | 1850 | 2020 | 1710 | 3450 | 4180 | 734 | 805 | 649 | 527 | 716 | 177 | 376 |
| 13 | 1700 | 1840 | 1620 | 2990 | 3080 | 722 | 710 | 582 | 552 | 692 | 197 | 376 |
| 14 | 1200 | 5510 | 1500 | 4460 | 2630 | 692 | 710 | 742 | 523 | 450 | 260 | 445 |
| 15 | 1770 | 7970 | 1770 | 10500 | 2660 | 644 | 889 | 586 | 477 | 328 | 276 | 360 |
| 16 | 1450 | 6920 | 1550 | 9260 | 4220 | 620 | 758 | 561 | 764 | 300 | 312 | 385 |
| 17 | 5600 | 5130 | 1390 | 5480 | 4560 | 740 | 710 | 575 | 800 | 284 | 268 | 268 |
| 18 | 8190 | 2690 | 1270 | 3400 | 5040 | 2220 | 680 | 478 | 610 | 268 | 221 | 304 |
| 19 | 7060 | 2220 | 1190 | 2640 | 3530 | 3270 | 674 | 421 | 598 | 260 | 221 | 380 |
| 20 | 5410 | 1950 | 1110 | 2140 | 2390 | 1770 | 777 | 416 | 521 | 249 | 380 | 380 |
| 21 | 2730 | 1650 | 1040 | 1760 | 1830 | 1530 | 746 | 394 | 503 | 242 | 316 | 328 |
| 22 | 1700 | 1660 | 1040 | 1680 | 1580 | 1760 | 686 | 330 | 493 | 242 | 260 | 340 |
| 23 | 1350 | 3330 | 1570 | 1540 | 1650 | 1830 | 668 | 405 | 364 | 232 | 242 | 276 |
| 24 | 1170 | 4090 | 3990 | 1410 | 2180 | 4760 | 833 | 376 | 306 | 225 | 256 | 249 |
| 25 | 1950 | 4110 | 4310 | 1310 | 2220 | 4110 | 805 | 509 | 288 | 218 | 242 | 316 |
| 26 | 3070 | 4240 | 11000 | 1310 | 1860 | 2960 | 734 | 633 | 380 | 211 | 235 | 364 |
| 27 | 4050 | 2930 | 10400 | 4300 | 1930 | 2700 | 686 | 450 | 465 | 207 | 239 | 364 |
| 28 | 3790 | 2280 | 5020 | 4480 | 2020 | 2320 | 644 | 600 | 464 | 204 | 246 | 232 |
| 29 | 8250 | 1830 | 3920 | 2160 | 1860 | 1850 | 620 | 582 | 329 | 200 | 228 | 187 |
| 30 | 11800 | 2540 | 4150 | 1830 | --- | 1550 | 590 | 583 | 282 | 200 | 218 | 177 |
| 31 | 6020 | --- | 3150 | 1520 | --- | 1430 | --- | 658 | --- | 197 | 214 | --- |
| TOTAL | 91968 | 107850 | 138640 | 102040 | 60192 | 48681 | 23673 | 17899 | 18358 | 12350 | 7096 | 8572 |
| MEAN | 2967 | 3595 | 4472 | 3292 | 2076 | 1570 | 789 | 577 | 612 | 398 | 229 | 286 |
| MAX | 11800 | 7970 | 14800 | 10500 | 5040 | 4760 | 1230 | 1080 | 1750 | 878 | 380 | 445 |
| MIN | 197 | 1650 | 1040 | 1310 | 692 | 620 | 590 | 330 | 282 | 197 | 177 | 177 |
| AC-FT | 182400 | 213900 | 275000 | 202400 | 119400 | 96560 | 46960 | 35500 | 36410 | 24500 | 14070 | 17000 |

CAL YR 1975 TOTAL 593557 MEAN 1626 MAX 14800 MIN 151 AC-FT 1177000
WTR YR 1976 TOTAL 637319 MEAN 1741 MAX 14800 MIN 177 AC-FT 1264000

## 12037400 WYNOOCHEE RIVER ABOVE BLACK CREEK, NEAR MONTESANO, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962-65, 1970 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1969 to current year.

INSTRUMENTATION.--Temperature recorder since October 1969.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 24.0°C Aug. 10, 1971; minimum, 1.0°C Jan. 9, 10, 1973, Jan. 7-9, 1974.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 19.5°C July 25, 28; minimum, 4.0°C Feb. 5, 6.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 15.5 | 14.0 | 9.0 | 9.0 | 6.5 | 5.5 | 5.5 | 5.0 | 6.0 | 6.0 | 5.5 | 5.0 |
| 2 | 15.0 | 14.5 | 9.0 | 9.0 | 6.5 | 6.5 | 5.0 | 5.0 | 6.0 | 6.0 | 6.0 | 5.5 |
| 3 | 15.0 | 14.0 | 9.0 | 9.0 | 6.5 | 6.5 | 5.0 | 5.0 | 6.0 | 6.0 | 5.5 | 5.0 |
| 4 | 14.0 | 13.5 | 9.0 | 9.0 | 6.5 | 6.0 | 6.0 | 5.0 | 6.0 | 4.5 | 6.0 | 5.0 |
| 5 | 13.5 | 13.0 | 9.0 | 9.0 | 6.0 | 5.5 | 6.0 | 6.0 | 4.5 | 4.0 | 5.5 | 5.0 |
| 6 | 13.0 | 12.0 | 9.0 | 9.0 | 5.5 | 5.5 | 6.0 | 5.5 | 4.5 | 4.0 | 5.5 | 5.0 |
| 7 | 13.0 | 12.0 | 9.0 | 8.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.0 | 4.5 | 6.0 | 5.5 |
| 8 | 12.0 | 12.0 | 8.5 | 8.5 | 6.5 | 5.5 | 5.5 | 5.5 | 5.0 | 5.0 | 6.0 | 5.5 |
| 9 | 12.0 | 12.0 | 8.5 | 8.0 | 6.5 | 6.5 | 5.5 | 5.5 | 5.5 | 5.0 | 6.0 | 6.0 |
| 10 | 12.0 | 12.0 | 8.0 | 8.0 | 6.5 | 6.0 | 5.5 | 5.5 | 6.0 | 5.5 | 6.0 | 6.0 |
| 11 | 12.0 | 11.5 | 8.0 | 8.0 | 6.0 | 6.0 | 5.5 | 5.5 | 6.0 | 6.0 | 6.0 | 5.0 |
| 12 | 12.0 | 11.5 | 8.0 | 8.0 | 6.0 | 4.5 | 5.5 | 5.0 | 6.0 | 6.0 | 6.0 | 5.5 |
| 13 | 11.5 | 11.5 | 8.0 | 7.0 | 4.5 | 4.5 | 5.0 | 5.0 | 6.0 | 6.0 | 6.0 | 5.5 |
| 14 | 11.5 | 11.5 | 8.0 | 7.0 | 5.0 | 4.5 | 5.5 | 5.0 | 6.0 | 6.0 | 6.5 | 5.5 |
| 15 | 11.5 | 11.5 | 8.0 | 7.0 | 5.5 | 5.0 | 5.5 | 5.5 | 6.0 | 6.0 | 6.5 | 6.0 |
| 16 | 11.5 | 11.0 | 7.0 | 6.5 | 5.5 | 5.5 | 5.5 | 5.5 | 6.0 | 6.0 | 8.0 | 6.5 |
| 17 | 11.0 | 11.0 | 6.5 | 6.5 | 5.5 | 5.0 | 5.5 | 5.5 | 6.0 | 6.0 | 8.0 | 7.0 |
| 18 | 11.0 | 11.0 | 6.5 | 6.5 | 5.0 | 5.0 | 5.5 | 5.5 | 6.0 | 6.0 | 7.0 | 6.0 |
| 19 | 11.0 | 11.0 | 6.5 | 6.0 | 5.0 | 5.0 | 5.5 | 5.5 | 6.0 | 6.0 | 6.0 | 5.5 |
| 20 | 11.0 | 11.0 | 6.0 | 6.0 | 5.0 | 4.5 | 5.5 | 5.0 | 6.0 | 5.5 | 6.5 | 5.5 |
| 21 | 11.0 | 10.5 | 6.5 | 6.0 | 5.0 | 4.5 | 5.0 | 5.0 | 6.0 | 5.5 | 6.5 | 6.0 |
| 22 | 11.0 | 10.5 | 6.5 | 6.5 | 5.5 | 5.0 | 5.5 | 5.0 | 6.0 | 6.0 | 6.5 | 6.5 |
| 23 | 10.5 | 9.5 | 7.0 | 6.5 | 5.5 | 5.5 | 5.5 | 5.5 | 6.0 | 6.0 | 6.5 | 6.0 |
| 24 | 9.5 | 9.5 | 7.0 | 7.0 | 5.5 | 5.5 | 5.5 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 |
| 25 | 9.5 | 9.5 | 7.0 | 6.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 6.5 | 5.5 |
| 26 | 9.5 | 9.5 | 7.0 | 7.0 | 6.0 | 5.5 | 6.0 | 5.5 | 5.5 | 5.5 | 6.5 | 6.0 |
| 27 | 9.5 | 9.5 | 7.0 | 6.5 | 6.0 | 5.5 | 6.0 | 6.0 | 5.5 | 5.5 | 6.5 | 6.0 |
| 28 | 9.5 | 9.5 | 6.5 | 6.0 | 6.0 | 5.5 | 6.0 | 6.0 | 5.5 | 5.0 | 7.0 | 6.0 |
| 29 | 9.5 | 9.5 | 6.0 | 5.0 | 6.0 | 6.0 | 6.5 | 6.0 | 5.0 | 5.0 | 7.0 | 6.5 |
| 30 | 9.5 | 9.0 | 5.5 | 4.5 | 6.0 | 6.0 | 6.5 | 6.5 | --- | --- | 6.5 | 6.5 |
| 31 | 9.0 | 9.0 | --- | --- | 6.0 | 5.5 | 6.5 | 6.0 | --- | --- | 7.0 | 6.5 |
| MONTH | 15.5 | 9.0 | 9.0 | 4.5 | 6.5 | 4.5 | 6.5 | 5.0 | 6.0 | 4.0 | 8.0 | 5.0 |

| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 6.5 | 6.0 | 14.5 | 12.0 | 11.5 | 10.5 | 15.0 | 13.0 | 16.0 | 15.0 | 16.5 | 15.0 |
| 2 | 8.0 | 6.0 | 14.0 | 12.0 | 13.0 | 10.5 | 15.5 | 13.0 | 16.0 | 15.0 | 15.0 | 14.5 |
| 3 | 8.5 | 7.0 | 12.0 | 11.0 | 12.0 | 11.0 | 15.5 | 14.0 | 17.0 | 15.0 | 16.0 | 14.0 |
| 4 | 9.0 | 8.0 | 11.5 | 9.5 | 12.0 | 10.0 | 15.5 | 13.5 | 16.5 | 15.5 | 15.5 | 14.0 |
| 5 | 9.0 | 8.0 | 11.5 | 10.5 | 12.0 | 10.0 | 16.5 | 14.5 | 16.0 | 15.0 | 15.0 | 14.0 |
| 6 | 9.0 | 6.5 | 13.5 | 10.5 | 13.5 | 11.0 | 16.5 | 15.0 | 16.0 | 15.0 | 14.5 | 12.0 |
| 7 | 8.5 | 8.0 | 14.5 | 11.5 | 13.5 | 13.0 | 16.0 | 14.5 | 16.0 | 15.0 | 14.5 | 12.0 |
| 8 | 8.5 | 8.0 | 15.0 | 13.0 | 13.0 | 12.0 | 15.5 | 14.0 | 15.5 | 14.5 | 15.5 | 12.0 |
| 9 | 9.0 | 8.0 | 14.0 | 13.0 | 13.5 | 11.0 | 15.0 | 14.0 | 15.0 | 14.5 | 15.5 | 12.0 |
| 10 | 9.5 | 9.0 | 13.5 | 11.0 | 14.0 | 12.0 | 14.5 | 13.5 | 17.0 | 14.5 | 15.0 | 13.0 |
| 11 | 10.5 | 9.0 | 12.0 | 10.5 | 13.5 | 12.0 | 15.5 | 14.0 | 16.5 | 15.5 | 15.0 | 13.5 |
| 12 | 10.0 | 9.0 | 14.0 | 11.0 | 13.0 | 11.0 | 15.0 | 14.0 | 16.5 | 15.5 | 14.0 | 13.5 |
| 13 | 10.5 | 9.0 | 13.5 | 13.0 | 14.0 | 11.5 | 14.5 | 14.0 | 16.0 | 15.0 | 14.5 | 13.5 |
| 14 | 9.5 | 8.5 | 13.0 | 11.5 | 15.0 | 11.5 | 17.0 | 14.0 | 15.0 | 14.5 | 14.5 | 13.5 |
| 15 | 8.5 | 7.0 | 14.5 | 11.5 | 15.0 | 13.0 | 18.0 | 15.0 | 15.0 | 14.0 | 14.5 | 13.5 |
| 16 | 9.0 | 8.0 | 14.0 | 11.5 | 13.5 | 13.0 | 18.5 | 16.0 | 14.0 | 13.5 | 15.0 | 13.0 |
| 17 | 8.5 | 8.5 | 12.0 | 11.0 | 15.5 | 13.0 | 18.5 | 15.5 | 15.5 | 13.5 | 14.5 | 14.0 |
| 18 | 8.5 | 8.0 | 14.0 | 11.0 | 17.0 | 14.5 | 18.0 | 15.0 | 16.5 | 14.0 | 14.0 | 13.0 |
| 19 | 8.5 | 8.5 | 13.5 | 11.5 | 16.5 | 15.0 | 18.0 | 15.5 | 16.0 | 14.0 | 15.0 | 13.5 |
| 20 | 10.0 | 8.5 | 13.5 | 11.0 | 16.0 | 14.0 | 17.0 | 15.5 | 15.5 | 14.0 | 15.5 | 14.0 |
| 21 | 9.5 | 8.5 | 14.5 | 11.0 | 15.5 | 14.0 | 16.5 | 15.0 | 16.5 | 14.0 | 15.5 | 14.0 |
| 22 | 9.5 | 8.5 | 14.5 | 13.0 | 15.0 | 14.0 | 15.5 | 14.5 | 15.5 | 14.0 | 14.0 | 13.5 |
| 23 | 9.0 | 8.5 | 13.5 | 12.0 | 14.0 | 13.5 | 18.5 | 15.0 | 15.0 | 14.0 | 14.0 | 13.5 |
| 24 | 9.5 | 8.5 | 13.5 | 12.0 | 14.0 | 13.0 | 19.0 | 16.5 | 14.5 | 14.0 | 15.5 | 14.0 |
| 25 | 9.5 | 8.5 | 12.0 | 11.0 | 15.0 | 13.0 | 19.5 | 16.0 | 16.0 | 14.0 | 15.5 | 14.0 |
| 26 | 11.0 | 8.5 | 14.5 | 11.5 | 16.0 | 13.0 | 18.5 | 16.0 | 15.0 | 14.0 | 15.5 | 14.5 |
| 27 | 11.5 | 9.5 | 14.5 | 13.5 | 16.5 | 14.0 | 19.0 | 15.5 | 14.5 | 14.0 | 14.5 | 14.0 |
| 28 | 11.5 | 10.0 | 14.0 | 12.0 | 16.5 | 15.0 | 19.5 | 16.0 | 16.5 | 14.0 | 14.5 | 13.5 |
| 29 | 13.0 | 10.5 | 12.0 | 11.0 | 16.0 | 14.0 | 18.5 | 16.5 | 17.0 | 15.0 | 15.0 | 14.5 |
| 30 | 14.0 | 11.5 | 11.0 | 10.5 | 15.0 | 13.5 | 17.0 | 15.5 | 16.0 | 15.0 | 14.5 | 14.0 |
| 31 | --- | --- | 11.5 | 11.0 | --- | --- | 17.0 | 16.0 | 17.0 | 15.0 | --- | --- |
| MONTH | 14.0 | 6.0 | 15.0 | 9.5 | 17.0 | 10.0 | 19.5 | 13.0 | 17.0 | 13.5 | 16.5 | 12.0 |
| YEAR | 19.5 | 4.0 | | | | | | | | | | |

## 12039000 HUMPTULIPS RIVER NEAR HUMPTULIPS, WA

LOCATION.--Lat 47°13'42", long 123°56'23", in NE¼NE¼ sec.17, T.20 N., R.10 W., Grays Harbor County, Hydrologic Unit 17100105, on right bank 1.0 mi (1.6 km) southeast of Humptulips, 2.3 mi (3.7 km) upstream from Stevens Creek, 3.3 mi (5.3 km) downstream from confluence of East and West Forks, and at mile 24.8 (39.9 km).

DRAINAGE AREA.--130 mi² (337 km²).

PERIOD OF RECORD.-- May 1933 to January 1935, July 1942 to current year. Water temperatures November 1969 to October 1970. Chemical analyses, July 1959 to September 1970, October 1971 to September 1974, collected at site 1.2 mi (1.9 km) downstream from gage.

REVISED RECORDS.--WSP 1216: 1934-35, 1943-46, 1947(M), 1949(M). WSP 1246: Drainage area. WSP 1396: 1946(M), 1954(P). WSP 1932: 1960(P).

GAGE.--Water-stage recorder. Altitude of gage is 120 ft (37 m), from topographic map. Prior to Jan. 14, 1935, and Mar. 1, 1950, to Jan. 16, 1953, water-stage recorder and July 1, 1942, to Feb. 28, 1950, and Jan. 17, 1953, to Sept. 30, 1959, nonrecording gage; all at sites 400 ft (122 m) downstream at different datums.

REMARKS.--Records good except those for period of no gage-height record, which are fair. No diversion or regulation above station.

AVERAGE DISCHARGE.--35 years (1933-34, 1942-76), 1,360 ft³/s (38.52 m³/s), 142.07 in/yr (3,609 mm/yr), 985,300 acre-ft/yr (1,210 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft³/s) (935 m³/s) Jan. 22, 1935, gage height, 12.7 ft (3.87 m), datum then in use, from flood marks, from rating curve extended above 16,500 ft³/s (467 m³/s); maximum gage height, 13.03 ft (3.972 m) Jan. 19, 1968; minimum discharge observed, 82 ft³/s (2.32 m³/s) Sept. 11, 1944.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10,000 ft³/s (283 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 1200 | 18,300 | 518 | 10.61 | 3.234 | Dec. 2 | 1100 | *23,500 | 666 | *11.97 | 3.648 |
| Oct. 30 | 0100 | 16,200 | 459 | 9.99 | 3.045 | Dec. 26 | unknown | 21,000 | 595 | 11.36 | 3.463 |
| Nov. 15 | 0600 | 12,000 | 340 | 8.72 | 2.658 | Jan. 15 | unknown | unknown | --- | unknown | --- |

Minimum discharge, 180 ft³/s (5.10 m³/s) Sept. 30, gage height, 1.33 ft (0.405 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 187 | 4590 | 6710 | 1900 | 1300 | 1350 | 1490 | 1120 | 1050 | 444 | 241 | 272 |
| 2 | 183 | 4160 | 18500 | 1600 | 1150 | 1190 | 1310 | 1210 | 874 | 450 | 237 | 258 |
| 3 | 346 | 4950 | 16500 | 1500 | 1050 | 1070 | 1190 | 1020 | 766 | 385 | 233 | 249 |
| 4 | 974 | 4440 | 13000 | 2500 | 950 | 978 | 1150 | 890 | 675 | 661 | 229 | 241 |
| 5 | 1640 | 3670 | 5100 | 3000 | 900 | 890 | 1160 | 836 | 605 | 577 | 225 | 285 |
| 6 | 1470 | 3920 | 3280 | 2400 | 820 | 829 | 1210 | 773 | 570 | 474 | 221 | 272 |
| 7 | 903 | 4190 | 2550 | 2100 | 760 | 801 | 1150 | 759 | 552 | 480 | 217 | 249 |
| 8 | 882 | 3480 | 2790 | 2300 | 740 | 766 | 1310 | 850 | 540 | 1440 | 217 | 237 |
| 9 | 2410 | 2800 | 2370 | 2200 | 740 | 752 | 1280 | 898 | 522 | 1030 | 213 | 225 |
| 10 | 2300 | 2230 | 1960 | 2800 | 738 | 962 | 1180 | 970 | 516 | 773 | 209 | 217 |
| 11 | 1580 | 1930 | 1680 | 4000 | 2470 | 1070 | 1410 | 970 | 510 | 661 | 201 | 213 |
| 12 | 1120 | 1860 | 1490 | 3000 | 5150 | 922 | 1330 | 780 | 675 | 570 | 198 | 225 |
| 13 | 889 | 2260 | 1360 | 2400 | 2740 | 882 | 1100 | 731 | 612 | 522 | 221 | 213 |
| 14 | 1010 | 7420 | 1230 | 3500 | 2730 | 815 | 1140 | 703 | 522 | 480 | 375 | 402 |
| 15 | 2540 | 8300 | 1500 | 10000 | 2670 | 773 | 1310 | 640 | 619 | 450 | 325 | 340 |
| 16 | 2000 | 4260 | 1400 | 6000 | 4360 | 780 | 1110 | 626 | 1000 | 426 | 456 | 285 |
| 17 | 14100 | 2990 | 1300 | 3500 | 4350 | 1350 | 1030 | 633 | 766 | 408 | 355 | 263 |
| 18 | 6830 | 2290 | 1200 | 2700 | 3840 | 3850 | 970 | 564 | 682 | 385 | 295 | 245 |
| 19 | 5610 | 1860 | 1100 | 2200 | 2710 | 2710 | 954 | 528 | 633 | 370 | 290 | 233 |
| 20 | 3550 | 1550 | 1000 | 1900 | 2080 | 2190 | 1200 | 504 | 570 | 360 | 612 | 225 |
| 21 | 2460 | 1370 | 950 | 1700 | 1700 | 1890 | 1110 | 480 | 528 | 345 | 456 | 217 |
| 22 | 1850 | 1470 | 940 | 1500 | 1480 | 2570 | 994 | 468 | 492 | 335 | 365 | 217 |
| 23 | 1460 | 5530 | 1500 | 1300 | 1910 | 2390 | 962 | 456 | 462 | 320 | 325 | 213 |
| 24 | 1240 | 4260 | 2700 | 1200 | 1900 | 4970 | 1270 | 504 | 456 | 300 | 385 | 205 |
| 25 | 2290 | 2700 | 5000 | 1100 | 1820 | 4060 | 1150 | 703 | 426 | 295 | 340 | 201 |
| 26 | 3130 | 3970 | 15000 | 1100 | 1700 | 3090 | 1030 | 633 | 396 | 285 | 335 | 194 |
| 27 | 4150 | 2790 | 6000 | 5000 | 1800 | 2730 | 954 | 647 | 380 | 276 | 330 | 191 |
| 28 | 3450 | 2070 | 3500 | 3000 | 1770 | 2330 | 946 | 633 | 370 | 267 | 355 | 191 |
| 29 | 9290 | 1650 | 3000 | 2000 | 1560 | 1920 | 962 | 689 | 370 | 258 | 325 | 187 |
| 30 | 9380 | 2660 | 3100 | 1700 | --- | 1710 | 1020 | 962 | 380 | 254 | 300 | 184 |
| 31 | 4290 | --- | 2400 | 1500 | --- | 1750 | --- | 1000 | --- | 249 | 285 | --- |
| TOTAL | 93514 | 101620 | 130110 | 82600 | 57888 | 54340 | 34382 | 23180 | 17519 | 14530 | 9371 | 7149 |
| MEAN | 3017 | 3387 | 4197 | 2665 | 1996 | 1753 | 1146 | 748 | 584 | 469 | 302 | 238 |
| MAX | 14100 | 8300 | 18500 | 10000 | 5150 | 4970 | 1490 | 1210 | 1050 | 1440 | 612 | 402 |
| MIN | 183 | 1370 | 940 | 1100 | 738 | 752 | 946 | 456 | 370 | 249 | 198 | 184 |
| CFSM | 23.2 | 26.1 | 32.3 | 20.5 | 15.4 | 13.5 | 8.82 | 5.75 | 4.49 | 3.61 | 2.32 | 1.83 |
| IN. | 26.76 | 29.08 | 37.23 | 23.64 | 16.56 | 15.55 | 9.84 | 6.63 | 5.01 | 4.16 | 2.68 | 2.05 |
| AC-FT | 185500 | 201600 | 258100 | 163800 | 114800 | 107800 | 68200 | 45980 | 34750 | 28820 | 18590 | 14180 |

CAL YR 1975 TOTAL 605641 MEAN 1659 MAX 18500 MIN 141 CFSM 12.8 IN 173.31 AC-FT 1201000
WTR YR 1976 TOTAL 626203 MEAN 1711 MAX 18500 MIN 183 CFSM 13.2 IN 179.19 AC-FT 1242000

NOTE.--No gage-height record Dec. 15 to Feb. 9.

## 12039220 MOCLIPS RIVER AT MOCLIPS, WA

LOCATION.--Lat 47°14'32", long 124°11'27", in NW¼NW¼ sec.9, T.20 N., R.12 W., Grays Harbor County, Hydrologic Unit 17100102, on right bank at old road crossing, 1.0 mi (1.6 km) northeast of Moclips and 1.4 mi (2.3 km) upstream from mouth.

DRAINAGE AREA.--35.0 mi² (90.6 km²).

PERIOD OF RECORD.--December 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 25 ft (7.6 m), from topographic map.

REMARKS.--Records good except those above 2,000 ft³/s (56.6 m³/s) and for period July 8-Aug. 16, which are fair, and those for periods of no gage-height record, Oct. 18-Dec. 14, Dec. 18-Feb.5, and Feb. 24-Mar. 31, which are poor. No regulation or diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,260 ft³/s (121 m³/s) Dec. 26, 1975, gage height, 12.40 ft (3,780 m) from rating curve extended above 1,800 ft³/s (51.0 m³/s) on basis of velocity-area study; minimum, 7.8 ft³/s (0.22 m³/s), Aug. 5, 6, 7, 1975, gage height, 1.46 ft (0.445 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (56.6 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 0800 | about 3,700 | 105 | about 11.2 | 3.41 | Dec. 26 | unknown | *4,260 | 121 | *12.40 | 3.780 |
| Oct. 29 | ---- | unknown | --- | unknown | --- | Jan. 15 | ---- | unknown | --- | unknown | --- |
| Nov. 14 | ---- | unknown | --- | unknown | --- | Jan. 27 | ---- | unknown | --- | unknown | --- |
| Nov. 23 | ---- | unknown | --- | unknown | --- | Mar. 24 | ---- | unknown | --- | unknown | --- |
| Dec. 2 | unknown | 3,740 | 106 | 11.36 | 3.463 | | | | | | |

Minimum discharge, 11 ft³/s (0.31 m³/s) Oct. 1, 2, gage height, 1.56 ft (0.475 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 900 | 1800 | 180 | 120 | 170 | 297 | 69 | 186 | 25 | 16 | 27 |
| 2 | 12 | 700 | 3000 | 140 | 100 | 140 | 196 | 67 | 132 | 26 | 15 | 25 |
| 3 | 48 | 900 | 2400 | 120 | 85 | 120 | 145 | 65 | 88 | 64 | 15 | 23 |
| 4 | 168 | 750 | 1700 | 700 | 75 | 110 | 111 | 61 | 68 | 53 | 15 | 22 |
| 5 | 372 | 1100 | 800 | 470 | 65 | 100 | 92 | 61 | 54 | 36 | 15 | 26 |
| 6 | 364 | 1200 | 400 | 360 | 60 | 90 | 82 | 61 | 47 | 162 | 14 | 36 |
| 7 | 203 | 700 | 180 | 300 | 55 | 80 | 81 | 54 | 42 | 476 | 14 | 32 |
| 8 | 210 | 450 | 550 | 330 | 80 | 75 | 90 | 48 | 40 | 250 | 14 | 26 |
| 9 | 452 | 320 | 320 | 370 | 110 | 70 | 95 | 45 | 38 | 150 | 14 | 22 |
| 10 | 335 | 230 | 210 | 600 | 134 | 150 | 95 | 54 | 37 | 90 | 14 | 20 |
| 11 | 183 | 180 | 160 | 420 | 856 | 120 | 136 | 113 | 39 | 60 | 13 | 19 |
| 12 | 110 | 300 | 140 | 300 | 1600 | 100 | 139 | 79 | 78 | 45 | 13 | 19 |
| 13 | 81 | 800 | 190 | 230 | 608 | 90 | 107 | 57 | 69 | 38 | 25 | 18 |
| 14 | 172 | 2300 | 130 | 1100 | 430 | 80 | 118 | 47 | 48 | 33 | 65 | 61 |
| 15 | 712 | 1100 | 300 | 2400 | 504 | 75 | 283 | 42 | 78 | 30 | 55 | 78 |
| 16 | 584 | 450 | 246 | 1000 | 1070 | 70 | 195 | 39 | 243 | 28 | 80 | 47 |
| 17 | 3100 | 300 | 140 | 450 | 1160 | 250 | 156 | 38 | 139 | 26 | 60 | 34 |
| 18 | 900 | 220 | 120 | 300 | 744 | 800 | 139 | 39 | 84 | 25 | 39 | 29 |
| 19 | 1300 | 170 | 100 | 220 | 324 | 500 | 139 | 37 | 61 | 24 | 32 | 26 |
| 20 | 400 | 140 | 90 | 170 | 196 | 600 | 297 | 34 | 48 | 26 | 95 | 22 |
| 21 | 250 | 120 | 85 | 140 | 143 | 350 | 205 | 32 | 41 | 24 | 78 | 21 |
| 22 | 180 | 200 | 140 | 200 | 120 | 500 | 132 | 31 | 37 | 23 | 46 | 21 |
| 23 | 140 | 1600 | 300 | 150 | 206 | 700 | 122 | 30 | 34 | 22 | 35 | 20 |
| 24 | 110 | 500 | 800 | 120 | 350 | 2000 | 269 | 35 | 34 | 21 | 48 | 20 |
| 25 | 850 | 220 | 700 | 100 | 250 | 1000 | 195 | 71 | 33 | 20 | 47 | 19 |
| 26 | 650 | 650 | 3500 | 150 | 240 | 600 | 141 | 107 | 32 | 19 | 44 | 19 |
| 27 | 700 | 350 | 1300 | 1400 | 240 | 400 | 113 | 98 | 29 | 18 | 52 | 18 |
| 28 | 600 | 220 | 380 | 700 | 300 | 310 | 93 | 78 | 26 | 17 | 53 | 17 |
| 29 | 2400 | 140 | 550 | 350 | 220 | 250 | 82 | 88 | 25 | 17 | 45 | 17 |
| 30 | 1300 | 900 | 370 | 210 | --- | 300 | 76 | 147 | 25 | 16 | 35 | 16 |
| 31 | 750 | --- | 250 | 150 | --- | 380 | --- | 176 | --- | 16 | 30 | --- |
| TOTAL | 17648 | 18110 | 21351 | 13830 | 10445 | 10580 | 4421 | 2003 | 1935 | 1880 | 1136 | 800 |
| MEAN | 569 | 604 | 689 | 446 | 360 | 341 | 147 | 64.6 | 64.5 | 60.6 | 36.6 | 26.7 |
| MAX | 3100 | 2300 | 3500 | 2400 | 1600 | 2000 | 297 | 176 | 243 | 476 | 95 | 78 |
| MIN | 12 | 120 | 85 | 100 | 55 | 70 | 76 | 30 | 25 | 16 | 13 | 16 |
| CFSM | 16.3 | 17.3 | 19.7 | 12.7 | 10.3 | 9.74 | 4.20 | 1.85 | 1.84 | 1.73 | 1.05 | .76 |
| IN. | 18.76 | 19.25 | 22.69 | 14.70 | 11.10 | 11.24 | 4.70 | 2.13 | 2.06 | 2.00 | 1.21 | .85 |
| AC-FT | 35000 | 35920 | 42350 | 27430 | 20720 | 20990 | 8770 | 3970 | 3840 | 3730 | 2250 | 1590 |

CAL YR 1975 TOTAL 102254.4 MEAN 280 MAX 3500 MIN 7.8 CFSM 8.00 IN 108.68 AC-FT 202800
WTR YR 1976 TOTAL 104139.0 MEAN 285 MAX 3500 MIN 12 CFSM 8.14 IN 110.68 AC-FT 206600

NOTE.--No gage-height record Oct. 18 to Dec. 14, Dec. 18 to Feb. 8, Feb. 24 to Mar. 31 and July 8 to Aug. 16.

## 12039300 NORTH FORK QUINAULT RIVER NEAR AMANADA PARK, WA
(Hydrologic bench-mark station)

LOCATION.--Lat 47°35'46", long 123°37'23", in SW¼ sec.6, T.24 N., R.7 W., Jefferson County, Hydrologic Unit 17100102, Olympic National Park, on right bank 15.5 mi (24.9 km) northeast of Amanda Park and at mile 5.2 (8.4 km).

DRAINAGE AREA.--74.1 $mi^2$ (191.9 $km^2$).

### WATER DISCHARGE RECORDS

PERIOD OF RECORD.--November 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 620 ft (189 m), from topographic map.

REMARKS.--Water discharge records good except those above 6,000 $ft^3/s$ (170 $m^3/s$) which are poor. No regulation or diversion above station.

AVERAGE DISCHARGE.--11 years, 910 $ft^3/s$ (25.77 $m^3/s$), 166.77 in/yr (4,236 mm/yr), 659,300 acre-ft/yr (813 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge,22,200 $ft^3/s$ (629 $m^3/s$) Dec. 3, 1975, gage height, 12.59 ft (3.837 m), from rating curve extended above 4,200 $ft^3/s$ (119 m); minimum, 103 $ft^3/s$ (2.92 $m^3/s$) Oct. 3, 1965, gage height, 1.93 ft (0.588 m).

EXTREMES FOR CURRENT YEAR.--Peak dischages above base of 6,000 $ft^3/s$ (170 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 0100 | 16,000 | 453 | 10.90 | 3.322 | Nov. 15 | 0100 | 18,600 | 527 | 11.64 | 3.548 |
| Oct. 29 | 2000 | 8,280 | 234 | 8.25 | 2.515 | Dec. 3 | 2200 | *22,200 | 629 | *12.59 | 3.837 |
| Nov. 2 | 2000 | 6,440 | 182 | 7.44 | 2.268 | Dec. 26 | 0700 | 20,000 | 566 | 12.05 | 3.673 |
| Nov. 5 | 1200 | 6,850 | 194 | 7.63 | 2.326 | Jan. 27 | 0400 | 7,520 | 213 | 8.21 | 2.502 |

Minimum discharge, 162 $ft^3/s$ (4.59 $m^3/s$) Oct. 1, 2, gage height, 2.69 ft (0.820 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 165 | 2910 | 2950 | 863 | 728 | 306 | 350 | 1470 | 755 | 1200 | 746 | 431 |
| 2 | 165 | 3770 | 11900 | 755 | 678 | 280 | 311 | 1800 | 676 | 1070 | 746 | 398 |
| 3 | 1180 | 4740 | 12000 | 719 | 622 | 265 | 300 | 1170 | 646 | 1170 | 827 | 380 |
| 4 | 750 | 3790 | 5920 | 1370 | 606 | 255 | 328 | 1050 | 646 | 1740 | 782 | 386 |
| 5 | 1940 | 3720 | 2120 | 1040 | 566 | 245 | 392 | 970 | 670 | 1510 | 737 | 536 |
| 6 | 667 | 2360 | 1560 | 764 | 529 | 237 | 466 | 900 | 836 | 1540 | 755 | 417 |
| 7 | 439 | 2180 | 1400 | 755 | 501 | 237 | 459 | 1220 | 980 | 1610 | 719 | 350 |
| 8 | 543 | 1610 | 1700 | 950 | 508 | 233 | 737 | 1750 | 1090 | 2330 | 678 | 311 |
| 9 | 2420 | 1240 | 1300 | 800 | 459 | 237 | 728 | 1860 | 1150 | 1450 | 654 | 300 |
| 10 | 1360 | 1050 | 1050 | 940 | 431 | 295 | 630 | 1810 | 1150 | 1230 | 670 | 295 |
| 11 | 704 | 946 | 900 | 990 | 598 | 280 | 872 | 1420 | 1080 | 1230 | 678 | 300 |
| 12 | 530 | 927 | 800 | 678 | 980 | 255 | 702 | 1230 | 1160 | 1160 | 654 | 285 |
| 13 | 444 | 3350 | 700 | 574 | 818 | 241 | 566 | 1450 | 881 | 1090 | 654 | 280 |
| 14 | 1050 | 8330 | 650 | 1690 | 746 | 233 | 522 | 1230 | 900 | 1130 | 678 | 431 |
| 15 | 918 | 5110 | 750 | 4580 | 614 | 229 | 466 | 1180 | 1750 | 1260 | 686 | 328 |
| 16 | 4010 | 1820 | 660 | 2850 | 773 | 250 | 410 | 1290 | 1690 | 1430 | 694 | 306 |
| 17 | 10500 | 1320 | 631 | 1600 | 773 | 654 | 380 | 1140 | 1560 | 1340 | 536 | 300 |
| 18 | 2230 | 1060 | 631 | 1170 | 710 | 1020 | 356 | 960 | 1790 | 1200 | 459 | 280 |
| 19 | 3160 | 918 | 624 | 940 | 550 | 582 | 344 | 940 | 1740 | 1160 | 614 | 290 |
| 20 | 1440 | 806 | 582 | 845 | 466 | 480 | 410 | 890 | 1440 | 1190 | 755 | 300 |
| 21 | 1080 | 750 | 556 | 782 | 417 | 417 | 374 | 900 | 1310 | 960 | 550 | 295 |
| 22 | 848 | 806 | 582 | 854 | 431 | 614 | 339 | 950 | 1180 | 863 | 501 | 280 |
| 23 | 712 | 2120 | 1010 | 782 | 702 | 487 | 333 | 854 | 1080 | 1040 | 473 | 260 |
| 24 | 638 | 2080 | 2830 | 654 | 522 | 678 | 417 | 1190 | 1120 | 1100 | 543 | 241 |
| 25 | 1200 | 1250 | 2080 | 582 | 445 | 558 | 386 | 1160 | 990 | 1090 | 501 | 237 |
| 26 | 992 | 1820 | 9120 | 863 | 398 | 466 | 356 | 1130 | 960 | 1020 | 487 | 241 |
| 27 | 974 | 1090 | 2010 | 3340 | 380 | 398 | 380 | 1550 | 1070 | 881 | 670 | 237 |
| 28 | 891 | 856 | 1510 | 1200 | 356 | 362 | 494 | 1110 | 1250 | 900 | 654 | 229 |
| 29 | 4480 | 743 | 2330 | 990 | 328 | 322 | 654 | 910 | 1320 | 910 | 550 | 225 |
| 30 | 2410 | 1090 | 1580 | 818 | --- | 368 | 1070 | 836 | 1170 | 782 | 508 | 217 |
| 31 | 1370 | --- | 1070 | 755 | --- | 445 | --- | 764 | --- | 782 | 459 | --- |
| TOTAL | 50210 | 64562 | 73506 | 36493 | 16635 | 11929 | 14532 | 37084 | 34042 | 37368 | 19618 | 9366 |
| MEAN | 1620 | 2152 | 2371 | 1177 | 574 | 385 | 484 | 1196 | 1135 | 1205 | 633 | 312 |
| MAX | 10500 | 8330 | 12000 | 4580 | 980 | 1020 | 1070 | 1860 | 1790 | 2330 | 827 | 536 |
| MIN | 165 | 743 | 556 | 574 | 328 | 229 | 300 | 764 | 646 | 782 | 459 | 217 |
| CFSM | 21.9 | 29.0 | 32.0 | 15.9 | 7.75 | 5.20 | 6.53 | 16.1 | 15.3 | 16.3 | 8.54 | 4.21 |
| IN. | 25.21 | 32.41 | 36.90 | 18.32 | 8.35 | 5.99 | 7.30 | 18.62 | 17.09 | 18.76 | 9.85 | 4.70 |
| AC-FT | 99590 | 128100 | 145800 | 72380 | 33000 | 23660 | 28820 | 73560 | 67520 | 74120 | 38910 | 18580 |

CAL YR 1975 TOTAL 385518 MEAN 1056 MAX 12000 MIN 165 CFSM 14.3 IN 193.54 AC-FT 764700
WTR YR 1976 TOTAL 405345 MEAN 1108 MAX 12000 MIN 165 CFSM 15.0 IN 203.49 AC-FT 804000

## 12039300 NORTH FORK QUINAULT RIVER NEAR AMANDA PARK, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: March 1965 to current year.

INSTRUMENTATION.--Temperature recorder since March 1965.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 14.5°C Aug. 7, 16-18, 1965; minimum, 1,0°C Jan. 31, 1968, sometimes during period Dec. 16, 1970 to Jan. 20, 1971, Mar. 1, 2, 1971, Dec. 16, 1975, Feb. 29, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 11.0°C Sept. 27, 29; minimum recorded, 1.0°C Dec. 16, Feb. 29.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | STREPTOCOCCI (COLONIES PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 16... | 1145 | 1180 | 75 | 7.4 | 7.1 | 12.9 | 64 | 9 | 7 | 30 | 3 |
| NOV 12... | 1130 | 904 | 65 | 7.5 | 4.4 | 11.7 | 5 | 6 | <1 | 39 | 9 |
| DEC 16... | 1500 | 659 | 70 | 7.2 | 1.2 | 13.1 | 1 | 2 | <1 | 35 | 5 |
| JAN 08... | 1000 | 940 | 57 | 7.2 | 3.3 | 13.3 | 4 | 1 | 2 | 32 | 7 |
| FEB 18... | 1230 | 746 | 61 | 6.9 | 2.8 | 12.8 | 1 | -- | <1 | 31 | 7 |
| MAR 15... | 1000 | 250 | 90 | 7.2 | 2.7 | 13.2 | <1 | <1 | <1 | 42 | 9 |
| APR 07... | 1030 | 438 | 72 | 7.0 | 3.3 | 12.6 | <1 | <1 | <1 | 36 | 9 |
| MAY 26... | 1000 | 1140 | 54 | 7.1 | 4.2 | 12.9 | 10 | 1 | <1 | 27 | 7 |
| JUN 24... | 0930 | 1130 | 54 | 6.6 | 5.1 | 12.3 | <1 | 1 | -- | 24 | 4 |
| JUL 22... | 0900 | 809 | 56 | 6.8 | 6.2 | 12.2 | 1 | 1 | 1 | 29 | 6 |
| AUG 19... | 1030 | 466 | 65 | 6.9 | 8.0 | 11.6 | 18 | <1 | 10 | 37 | 10 |
| SEP 27... | 1030 | 237 | 85 | 7.3 | 9.6 | 11.1 | 15 | <1 | 20 | 37 | 8 |

| DATE | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | SODIUM ADSORPTION RATIO | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | CARBONATE (CO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 16... | 11 | .7 | 1.3 | .1 | .1 | 33 | 0 | 27 | 2.1 | 8.5 | 1.9 |
| NOV 12... | 14 | .9 | 1.5 | .1 | .0 | 36 | 0 | 30 | 1.8 | 8.9 | .8 |
| DEC 16... | 13 | .5 | 1.5 | .1 | .2 | 36 | 0 | 30 | 3.6 | 9.1 | .8 |
| JAN 08... | 11 | 1.0 | 1.2 | .1 | .1 | 30 | 0 | 25 | 3.0 | 6.7 | 1.3 |
| FEB 18... | 11 | .9 | 1.6 | .1 | .3 | 30 | 0 | 25 | 6.0 | 7.9 | 1.6 |
| MAR 15... | 15 | 1.1 | 2.2 | .1 | .1 | 40 | 0 | 33 | 4.0 | 11 | 4.1 |
| APR 07... | 13 | .8 | 1.4 | .1 | .2 | 33 | 0 | 27 | 5.3 | 8.7 | 1.4 |
| MAY 26... | 10 | .5 | 1.0 | .1 | .1 | 25 | 0 | 21 | 3.2 | 5.6 | 1.0 |
| JUN 24... | 9.3 | .3 | .9 | .1 | .2 | 25 | 0 | 21 | 10 | 7.2 | 1.6 |
| JUL 22... | 11 | .3 | 1.1 | .1 | .2 | 28 | 0 | 23 | 7.1 | 7.5 | 1.0 |
| AUG 19... | 14 | .6 | 1.5 | .1 | .2 | 33 | 0 | 27 | 6.6 | 9.3 | .8 |
| SEP 27... | 14 | .5 | 1.5 | .1 | .1 | 36 | 0 | 30 | 2.9 | 9.9 | 1.5 |

## 12039300 NORTH FORK QUINAULT RIVER NEAR AMANDA PARK, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | DISSOLVED FLUORIDE (F) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) | DISSOLVED SOLIDS (TONS PER AC-FT) | DISSOLVED SOLIDS (TONS PER DAY) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | CYANIDE (CN) (MG/L) | SUSPENDED SEDIMENT (MG/L) | SUSPENDED SEDIMENT DISCHARGE (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 16... | .0 | 3.8 | 48 | 44 | .07 | 153 | .03 | .01 | -- | 2 | 6.4 |
| NOV 12... | .2 | 4.8 | 60 | 49 | .08 | 146 | .03 | .00 | -- | 5 | 12 |
| DEC 16... | .0 | 4.9 | 42 | 48 | .06 | 74.7 | .01 | .01 | -- | 4 | 7.1 |
| JAN 08... | .1 | 3.5 | 50 | 40 | .07 | 127 | .01 | .01 | -- | 3 | 7.6 |
| FEB 18... | .0 | 3.8 | 40 | 42 | .05 | 80.6 | .02 | .00 | -- | 0 | .00 |
| MAR 15... | .1 | 4.7 | 61 | 58 | .08 | 41.2 | .01 | .00 | -- | 1 | .67 |
| APR 07... | .1 | 4.0 | 43 | 46 | .06 | 50.9 | .01 | .00 | -- | 1 | 1.2 |
| MAY 26... | .1 | 4.3 | 33 | 35 | .04 | 102 | .02 | .01 | .00 | 5 | 15 |
| JUN 24... | .1 | 3.4 | 34 | 35 | .05 | 104 | .01 | .01 | -- | 8 | 24 |
| JUL 22... | .0 | 3.8 | 45 | 39 | .06 | 98.3 | .01 | .00 | -- | 6 | 13 |
| AUG 19... | .1 | 3.8 | 53 | 47 | .07 | 66.7 | .01 | .02 | -- | 6 | 7.5 |
| SEP 27... | .0 | 4.0 | 56 | 49 | .08 | 35.8 | .00 | .00 | -- | 1 | .64 |

| DATE | TOTAL BARIUM (BA) (UG/L) | TOTAL CADMIUM (CD) (UG/L) | TOTAL CHROMIUM (CR) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MANGANESE (MN) (UG/L) | TOTAL MERCURY (HG) (UG/L) | TOTAL SELENIUM (SE) (UG/L) | TOTAL SILVER (AG) (UG/L) | TOTAL ZINC (ZN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY 26... | 0 | 0 | <10 | 30 | 90 | 49 | 0 | <.5 | 0 | 0 | 20 |

| DATE | TIME | TOTAL PCB (UG/L) | PCB IN BOTTOM MATERIAL (UG/KG) | TOTAL ALDRIN (UG/L) | ALDRIN IN BOTTOM MATERIAL (UG/KG) | TOTAL CHLORDANE (UG/L) | CHLORDANE IN BOTTOM MATERIAL (UG/KG) | TOTAL DDD (UG/L) | DDD IN BOTTOM MATERIAL (UG/KG) | TOTAL DDE (UG/L) | DDE IN BOTTOM MATERIAL (UG/KG) | TOTAL DDT (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY 25... | 1000 | .0 | 0 | .00 | .0 | .0 | 0 | .00 | .0 | .00 | .0 | .00 |

| DATE | DDT IN BOTTOM MATERIAL (UG/KG) | TOTAL DIAZINON (UG/L) | TOTAL DIELDRIN (UG/L) | DIELDRIN IN BOTTOM MATERIAL (UG/KG) | TOTAL ENDRIN (UG/L) | ENDRIN IN BOTTOM MATERIAL (UG/KG) | TOTAL ETHION (UG/L) | TOTAL HEPTACHLOR (UG/L) | HEPTACHLOR IN BOTTOM MATERIAL (UG/KG) | TOTAL HEPTACHLOR EPOXIDE (UG/L) | HEPTACHLOR EPOXIDE IN BOTTOM MATERIAL (UG/KG) | TOTAL LINDANE (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY 26... | .0 | .00 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 | .0 | .00 |

| DATE | LINDANE IN BOTTOM MATERIAL (UG/KG) | TOTAL MALATHION (UG/L) | TOTAL METHYL PARATHION (UG/L) | TOTAL METHYL TRITHION (UG/L) | TOTAL PARATHION (UG/L) | TOTAL TOXAPHENE (UG/L) | TOXAPHENE IN BOTTOM MATERIAL (UG/KG) | TOTAL TRITHION (UG/L) | TOTAL 2,4-D (UG/L) | TOTAL 2,4,5-T (UG/L) | TOTAL SILVEX (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY 26... | .0 | .00 | .00 | .00 | .00 | 0 | 0 | .00 | .00 | .00 | .00 |

## 12039300 NORTH FORK QUINAULT RIVER NEAR AMANDA PARK, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 10.0 | 9.0 | 5.5 | 5.5 | 3.5 | 3.5 | 2.0 | 2.0 | 3.5 | 3.5 | 2.0 | 1.5 |
| 2 | 10.0 | 9.5 | 5.5 | 5.5 | 4.0 | 3.5 | 3.0 | 2.0 | 3.5 | 3.5 | 3.0 | 2.0 |
| 3 | 10.0 | 9.0 | 5.5 | 5.5 | 4.5 | 4.0 | 3.5 | 3.0 | 3.5 | 3.5 | 3.0 | 2.0 |
| 4 | 9.0 | 8.5 | 5.5 | 5.5 | 4.5 | 4.5 | 3.5 | 3.5 | 3.5 | 2.0 | 3.5 | 3.0 |
| 5 | 8.5 | 8.0 | 5.5 | 5.5 | 4.5 | 4.5 | 3.5 | 3.0 | 2.0 | 1.5 | 3.5 | 2.0 |
| 6 | 8.0 | 8.0 | 5.5 | 5.0 | --- | --- | 3.5 | 3.5 | 2.0 | 2.0 | 3.5 | 3.0 |
| 7 | 8.0 | 8.0 | 5.0 | 5.0 | --- | --- | 3.5 | 3.5 | 3.5 | 2.0 | 4.0 | 3.5 |
| 8 | 8.0 | 8.0 | 5.0 | 4.5 | --- | --- | 3.5 | 3.5 | 3.5 | 3.5 | 4.0 | 3.5 |
| 9 | 8.0 | 8.0 | 4.5 | 4.5 | --- | --- | 3.5 | 3.5 | 3.5 | 3.5 | 4.0 | 3.5 |
| 10 | 8.0 | 8.0 | 4.5 | 4.5 | --- | --- | 3.5 | 2.0 | 3.5 | 3.5 | 3.5 | 3.0 |
| 11 | 8.0 | 7.0 | 4.5 | 4.5 | --- | --- | 3.0 | 3.0 | 3.5 | 2.0 | 4.0 | 3.0 |
| 12 | 8.0 | 8.0 | 4.5 | 4.5 | --- | --- | 3.5 | 3.0 | 3.0 | 2.0 | 3.5 | 3.0 |
| 13 | 8.0 | 8.0 | 4.5 | 4.0 | --- | --- | 3.5 | 3.5 | 3.0 | 3.0 | 3.5 | 3.0 |
| 14 | 8.0 | 8.0 | 4.5 | 4.0 | --- | --- | 3.5 | 3.5 | 3.0 | 2.0 | 4.0 | 3.0 |
| 15 | 8.0 | 8.0 | 4.5 | 4.0 | --- | --- | 3.5 | 3.5 | 3.0 | 2.0 | 4.5 | 2.5 |
| 16 | 8.0 | 7.0 | 4.0 | 4.0 | 1.5 | 1.0 | 3.5 | 3.5 | 3.0 | 2.0 | 4.0 | 3.5 |
| 17 | 8.5 | 8.0 | 4.0 | 4.0 | 1.5 | 1.5 | 3.5 | 3.5 | 3.0 | 2.0 | 3.5 | 3.0 |
| 18 | 8.0 | 7.0 | 4.0 | 3.5 | 2.0 | 1.5 | 3.5 | 3.5 | 3.0 | 2.0 | 3.0 | 3.0 |
| 19 | 7.0 | 6.5 | 4.0 | 3.5 | 2.0 | 1.5 | 3.5 | 3.5 | 3.5 | 3.0 | 3.5 | 3.0 |
| 20 | 7.0 | 6.5 | 4.0 | 4.0 | 2.0 | 2.0 | 3.5 | 3.5 | 3.5 | 3.0 | 3.5 | 3.0 |
| 21 | 6.5 | 6.5 | 4.0 | 4.0 | 2.0 | 2.0 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| 22 | 6.5 | 5.5 | 4.0 | 4.0 | 3.0 | 2.0 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| 23 | 6.0 | 5.5 | 4.0 | 4.0 | 3.0 | 3.0 | 3.5 | 3.5 | 3.5 | 3.0 | 3.5 | 3.5 |
| 24 | 5.5 | 5.5 | 4.5 | 4.0 | 3.0 | 3.0 | 3.5 | 3.5 | 3.0 | 2.0 | 3.5 | 3.0 |
| 25 | 5.5 | 5.5 | 4.5 | 4.5 | 3.0 | 3.0 | 3.5 | 3.5 | 2.0 | 2.0 | 3.5 | 3.0 |
| 26 | 5.5 | 5.0 | 4.5 | 4.5 | 3.5 | 3.0 | 3.5 | 3.5 | 2.0 | 2.0 | 3.5 | 2.0 |
| 27 | 5.5 | 5.0 | 4.5 | 3.5 | 3.5 | 3.0 | 3.5 | 3.5 | 2.0 | 2.0 | 3.0 | 2.0 |
| 28 | 5.5 | 5.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 2.0 | 2.0 | 4.0 | 3.0 |
| 29 | 5.5 | 5.5 | 3.5 | 3.0 | 4.0 | 3.5 | 3.5 | 3.5 | 2.0 | 1.0 | 3.5 | 3.5 |
| 30 | 5.5 | 5.5 | 3.5 | 3.0 | 3.5 | 3.0 | 3.5 | 3.5 | --- | --- | 3.5 | 3.5 |
| 31 | 5.5 | 5.5 | --- | --- | 3.0 | 2.0 | 3.5 | 3.5 | --- | --- | 4.0 | 3.5 |
| MONTH | 10.0 | 5.0 | 5.5 | 3.0 | --- | --- | 3.5 | 2.0 | 3.5 | 1.0 | 4.5 | 1.5 |

| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 4.0 | 3.5 | 4.5 | 3.5 | 5.0 | 4.5 | 5.5 | 5.5 | 8.5 | 7.0 | 10.0 | 9.5 |
| 2 | 4.5 | 3.5 | 3.5 | 3.5 | 5.5 | 4.5 | 6.5 | 5.5 | 9.0 | 8.0 | 10.0 | 9.0 |
| 3 | 5.0 | 3.5 | 4.5 | 3.5 | 5.5 | 4.0 | 6.0 | 5.5 | 9.0 | 8.5 | 10.0 | 9.0 |
| 4 | 4.5 | 3.5 | 4.5 | 4.0 | 5.5 | 4.5 | 6.0 | 5.5 | 9.0 | 8.0 | 10.0 | 9.5 |
| 5 | 4.5 | 3.5 | 4.5 | 4.0 | 6.0 | 4.5 | 8.0 | 5.5 | 9.0 | 8.0 | 9.5 | 9.0 |
| 6 | 4.5 | 3.5 | 5.0 | 4.0 | 6.0 | 4.5 | 6.0 | 5.5 | 8.5 | 8.0 | 9.0 | 8.5 |
| 7 | 3.5 | 3.5 | 5.5 | 4.0 | 5.5 | 4.5 | 6.0 | 5.5 | 8.5 | 8.0 | 9.0 | 8.0 |
| 8 | 4.0 | 3.5 | 4.5 | 3.5 | 5.5 | 4.5 | 6.0 | 5.5 | 8.5 | 8.0 | 9.5 | 8.0 |
| 9 | 4.5 | 3.5 | 5.0 | 3.5 | 6.0 | 4.5 | 5.5 | 5.5 | 9.5 | 8.0 | 9.5 | 8.0 |
| 10 | 4.5 | 4.0 | 3.5 | 3.5 | 5.5 | 5.0 | 6.5 | 5.5 | 9.5 | 8.5 | 10.0 | 8.5 |
| 11 | 4.0 | 4.0 | 4.5 | 3.5 | 5.0 | 4.5 | 7.0 | 6.0 | 9.5 | 8.5 | 9.5 | 9.0 |
| 12 | 4.5 | 4.0 | 5.0 | 4.0 | 4.5 | 4.5 | 6.5 | 6.0 | 9.5 | 8.5 | 9.5 | 9.0 |
| 13 | 4.5 | 4.0 | 4.5 | 4.0 | 5.5 | 4.0 | 7.0 | 6.0 | 9.5 | 8.5 | 9.5 | 9.0 |
| 14 | 4.5 | 3.5 | 5.0 | 3.5 | 6.0 | 4.5 | 8.0 | 6.0 | 8.5 | 8.0 | 9.5 | 9.0 |
| 15 | 4.0 | 3.5 | 5.5 | 4.0 | 5.5 | 4.5 | 8.5 | 6.5 | 8.5 | 8.0 | 10.0 | 9.0 |
| 16 | 4.5 | 3.5 | 4.5 | 4.0 | 5.5 | 4.5 | 9.0 | 6.5 | 8.0 | 8.0 | 10.0 | 9.0 |
| 17 | 4.5 | 4.0 | 4.5 | 3.5 | 6.5 | 4.5 | 8.5 | 6.5 | 8.0 | 8.0 | 10.0 | 9.5 |
| 18 | 4.5 | 3.5 | 5.5 | 4.0 | 6.0 | 5.0 | 8.5 | 6.5 | 9.0 | 8.0 | 10.0 | 9.0 |
| 19 | 4.5 | 4.0 | 4.5 | 4.0 | 6.0 | 5.0 | 8.5 | 6.5 | 8.5 | 8.0 | 10.5 | 9.5 |
| 20 | 4.5 | 4.0 | 5.0 | 4.5 | 6.0 | 4.5 | 8.0 | 6.5 | 9.0 | 8.0 | 10.5 | 9.5 |
| 21 | 5.0 | 3.5 | 5.5 | 4.5 | 6.0 | 5.0 | 6.5 | 6.0 | 9.0 | 8.0 | 10.0 | 10.0 |
| 22 | 4.0 | 3.5 | 4.5 | 4.5 | 5.5 | 5.0 | 7.0 | 6.0 | 9.0 | 8.5 | 10.0 | 10.0 |
| 23 | 4.5 | 4.0 | 5.0 | 4.5 | 5.5 | 5.0 | 9.0 | 6.5 | 9.0 | 8.5 | 10.0 | 9.5 |
| 24 | 4.5 | 4.0 | 4.5 | 4.0 | 5.5 | 5.0 | 8.5 | 6.5 | 9.0 | 8.5 | 10.0 | 9.5 |
| 25 | 5.0 | 4.0 | 4.5 | 4.0 | 6.5 | 5.0 | 9.0 | 7.0 | 9.0 | 8.5 | 10.5 | 9.5 |
| 26 | 5.5 | 4.0 | 5.0 | 4.0 | 6.5 | 5.0 | 8.5 | 6.5 | 8.5 | 8.0 | 10.5 | 9.5 |
| 27 | 5.0 | 4.0 | 4.5 | 4.5 | 7.0 | 5.5 | 8.5 | 6.5 | 8.5 | 8.5 | 11.0 | 9.5 |
| 28 | 5.5 | 4.0 | 4.5 | 4.0 | 6.5 | 5.5 | 9.0 | 6.5 | 9.5 | 8.5 | 10.5 | 10.0 |
| 29 | 5.5 | 4.0 | 4.5 | 4.5 | 6.0 | 5.5 | 9.0 | 8.0 | 10.0 | 9.0 | 11.0 | 10.0 |
| 30 | 4.5 | 3.5 | 4.5 | 4.5 | 6.0 | 5.5 | 8.0 | 7.0 | 10.0 | 9.0 | 10.5 | 10.0 |
| 31 | --- | --- | 4.5 | 4.5 | --- | --- | 9.0 | 7.0 | 10.0 | 9.0 | --- | --- |
| MONTH | 5.5 | 3.5 | 5.5 | 3.5 | 7.0 | 4.0 | 9.0 | 5.5 | 10.0 | 7.0 | 11.0 | 8.0 |
| YEAR | 11.0 | 1.0 | | | | | | | | | | |

## 12039500 QUINAULT RIVER AT QUINAULT LAKE, WA

LOCATION.--Lat 47°27'28" long 123°53'17", in SW¼NE¼ sec.25, T.23 N., R.10 W., Grays Harbor County, Hydrologic Unit 17100102, Quinault Indian Reservation, on left bank at outlet of Quinault Lake, 50 ft (15 m) downstream from Olympic Highway bridge on U.S. Highway 101, 2.0 mi (3.2 km) southwest of Quinault, and at mile 33.4 (53.7 km).

DRAINAGE AREA.--264 mi² (684 km²).

PERIOD OF RECORD.--October 1911 to current year. Monthly discharge only for some periods, published in WSP 1316. Chemical analyses July 1959 to June 1960, October 1962 to September 1970 (partial record station), October 1971 to September 1974.

REVISED RECORDS.--WSP 442: Drainage area. WSP 1286: 1915-16(M), 1934, 1936-39(M). WSP 1316: 1923, 1925, 1933. WSP 1635: 1917.

GAGE.--Water-stage recorder. Datum of gage is 184.60 ft (56.266 m) above mean sea level (State Highway Department bench mark). Prior to Sept. 30, 1916, nonrecording gages at sites within 4 mi (6.4 km) northeast of present site, at different datum. Oct. 1, 1916, to May 2, 1935, water-stage recorder at site 300 ft (91 m) downstream from present site at datum 0.36 ft (0.110 m) higher than present datum.

REMARKS.--Records good except those for period of no gage-height record, Jan. 6 to Feb. 9, which are fair. Flow affected by natural storage in Quinault Lake. No diversions above station.

AVERAGE DISCHARGE.--65 years, 2,854 ft³/s (80.83 m³/s), 146.81 in/yr (3,729 mm/yr), 2,068,000 acre-ft/yr 2,550 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,200 ft³/s (1,420 m³/s) Nov. 4, 1955, gage height, 20.51 ft (6.251 m); minimum, 276 ft³/s (7.82 m³/s) Sept. 12, 1944, gage height, 1.96 ft (0.597 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1909 reached a stage of approximately 22 ft (6.7 m), present datum, discharge, 52,600 ft³/s (1,490 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 12,000 ft³/s (340 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 2300 | 23,900 | 677 | 13.11 | 3.996 | Dec. 4 | 0600 | *36,400 | 1,030 | *16.90 | 5.151 |
| Oct. 30 | 0800 | 14,800 | 419 | 10.04 | 3.060 | Dec. 26 | 2000 | 21,600 | 612 | 12.35 | 3.764 |
| Nov. 4 | 0600 | 13,500 | 382 | 9.59 | 2.923 | Jan. 16 | ---- | unknown | ---- | unknown | ---- |
| Nov. 15 | 1100 | 21,500 | 609 | 12.30 | 3.749 | | | | | | |

Minimum discharge, 551 ft³/s (15.6 m³/s) Oct. 2, gage height, 2.44 ft (0.744 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 579 | 9150 | 5860 | 4920 | 3600 | 2010 | 2170 | 2640 | 2640 | 2810 | 1750 | 1240 |
| 2 | 568 | 8940 | 18800 | 4050 | 3300 | 1810 | 1990 | 3710 | 2500 | 2750 | 1680 | 1190 |
| 3 | 683 | 11600 | 30400 | 3580 | 3100 | 1650 | 1820 | 4090 | 2310 | 2630 | 1650 | 1120 |
| 4 | 1490 | 13000 | 31900 | 4540 | 2900 | 1520 | 1700 | 3730 | 2160 | 3010 | 1650 | 1090 |
| 5 | 2250 | 11300 | 18800 | 5650 | 2600 | 1420 | 1660 | 3380 | 2040 | 3260 | 1630 | 1120 |
| 6 | 3440 | 10600 | 11000 | 5100 | 2300 | 1340 | 1730 | 3070 | 1990 | 3320 | 1590 | 1160 |
| 7 | 2890 | 9890 | 7490 | 4300 | 2200 | 1280 | 1820 | 2900 | 2080 | 3380 | 1580 | 1110 |
| 8 | 2460 | 8600 | 6280 | 4100 | 2000 | 1230 | 1970 | 3280 | 2220 | 4260 | 1550 | 1060 |
| 9 | 4040 | 6970 | 5810 | 4600 | 1800 | 1190 | 2270 | 3970 | 2390 | 4490 | 1510 | 995 |
| 10 | 6620 | 5480 | 5070 | 4200 | 1680 | 1220 | 2390 | 4540 | 2540 | 3920 | 1460 | 938 |
| 11 | 5630 | 4540 | 4340 | 4500 | 2140 | 1320 | 2570 | 4680 | 2600 | 3450 | 1440 | 906 |
| 12 | 4200 | 4030 | 3760 | 5000 | 4420 | 1320 | 2810 | 4170 | 2700 | 3180 | 1430 | 882 |
| 13 | 3240 | 4090 | 3400 | 4000 | 4440 | 1310 | 2660 | 3870 | 2690 | 2910 | 1450 | 858 |
| 14 | 2770 | 11800 | 3030 | 3600 | 4420 | 1270 | 2500 | 3740 | 2480 | 2730 | 1520 | 954 |
| 15 | 3730 | 19500 | 2900 | 7000 | 4430 | 1200 | 2500 | 3460 | 2590 | 2670 | 1560 | 978 |
| 16 | 3830 | 14300 | 2750 | 12000 | 4790 | 1180 | 2330 | 3310 | 3510 | 2740 | 1710 | 946 |
| 17 | 17500 | 9290 | 2540 | 9000 | 5170 | 1330 | 2150 | 3300 | 3660 | 2870 | 1670 | 914 |
| 18 | 19400 | 6490 | 2370 | 6200 | 5280 | 2760 | 1980 | 3050 | 3780 | 2840 | 1530 | 882 |
| 19 | 13900 | 4980 | 2260 | 5000 | 4470 | 3740 | 1860 | 2800 | 3970 | 2710 | 1430 | 850 |
| 20 | 10600 | 4090 | 2150 | 4200 | 3600 | 3510 | 1850 | 2620 | 3890 | 2660 | 1560 | 834 |
| 21 | 7370 | 3510 | 2060 | 3800 | 2920 | 3120 | 1840 | 2470 | 3570 | 2550 | 1560 | 818 |
| 22 | 5410 | 3210 | 2040 | 3700 | 2470 | 3210 | 1760 | 2410 | 3270 | 2330 | 1470 | 818 |
| 23 | 4260 | 5120 | 2340 | 3600 | 2600 | 3330 | 1690 | 2350 | 2980 | 2170 | 1400 | 802 |
| 24 | 3520 | 7600 | 4380 | 3200 | 2830 | 4030 | 1740 | 2350 | 2780 | 2200 | 1370 | 780 |
| 25 | 3520 | 6800 | 5710 | 2900 | 2770 | 4650 | 1800 | 2710 | 2640 | 2220 | 1330 | 750 |
| 26 | 4340 | 6780 | 15600 | 3300 | 2590 | 4140 | 1770 | 2760 | 2480 | 2240 | 1320 | 735 |
| 27 | 5060 | 6210 | 16900 | 4500 | 2460 | 3710 | 1700 | 2960 | 2380 | 2160 | 1310 | 720 |
| 28 | 4920 | 4960 | 10400 | 8000 | 2390 | 3190 | 1690 | 3160 | 2410 | 2040 | 1400 | 705 |
| 29 | 7330 | 4050 | 8070 | 5800 | 2220 | 2710 | 1770 | 2980 | 2570 | 1990 | 1400 | 690 |
| 30 | 13700 | 3790 | 8090 | 4700 | --- | 2380 | 2010 | 2890 | 2690 | 1920 | 1360 | 667 |
| 31 | 9910 | --- | 6300 | 4000 | --- | 2300 | --- | 2710 | --- | 1810 | 1300 | --- |
| TOTAL | 179160 | 230670 | 252800 | 153040 | 91890 | 70380 | 60500 | 100060 | 82510 | 86220 | 46570 | 27512 |
| MEAN | 5779 | 7689 | 8155 | 4937 | 3169 | 2270 | 2017 | 3228 | 2750 | 2781 | 1502 | 917 |
| MAX | 19400 | 19500 | 31900 | 12000 | 5280 | 4650 | 2810 | 4680 | 3970 | 4490 | 1750 | 1240 |
| MIN | 568 | 3210 | 2040 | 2900 | 1680 | 1180 | 1660 | 2350 | 1990 | 1810 | 1300 | 667 |
| CFSM | 21.9 | 29.1 | 30.9 | 18.7 | 12.0 | 8.60 | 7.64 | 12.2 | 10.4 | 10.5 | 5.69 | 3.47 |
| IN. | 25.25 | 32.50 | 35.62 | 21.56 | 12.95 | 9.92 | 8.52 | 14.10 | 11.63 | 12.15 | 6.56 | 3.88 |
| AC-FT | 355400 | 457500 | 501400 | 303600 | 182300 | 139600 | 120000 | 198500 | 163700 | 171000 | 92370 | 54570 |

CAL YR 1975 TOTAL 1306944 MEAN 3581 MAX 31900 MIN 568 CFSM 13.6 IN 184.16 AC-FT 2592000
WTR YR 1976 TOTAL 1381312 MEAN 3774 MAX 31900 MIN 568 CFSM 14.3 IN 194.64 AC-FT 2740000

## 12039520 RAFT RIVER BELOW RAINY CREEK NEAR QUEETS, WA

LOCATION.--Lat 47°27'17", long 124°18'58", in SW¼NE¼ sec.27, T.23 N., R.13 W., Grays Harbor County, Hydrologic Unit 17100102, Quinault Indian Reservation, on left bank at the mouth of Rainy Creek, 5.9 mi (9.5 km) south of Queets and at mile 1.4 (2.3 km).

DRAINAGE AREA.--76.0 mi² (196.8 km²).

PERIOD OF RECORD.--April 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 10 ft (3 m), from topographic map.

REMARKS.--Records good except those for periods of no gage-height record which are fair, and those above 10,000 ft³/s (283 m³/s), which are poor. No regulation or diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,200 ft³/s (487 m³/s) Dec. 26, 1975, gage height, 16.57 ft(5.051 m) from rating extended above 5,000 ft³/s (142 m³/s); minimum, 42 ft³/s (1.19 m³/s) Oct. 17, 18, 19, 1974; minimum gage height, 3.12 ft (0.951 m) Aug. 6, 7, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 7,000 ft³/s (198 m³/s) and maximum (*) from rating curve extended as explained above:

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 0600 | 9,620 | 272 | 12.90 | 3.932 | Jan. 15 | 0100 | 10,000 | 286 | 13.14 | 4.005 |
| Oct. 29 | 1600 | 10,200 | 289 | 13.25 | 4.039 | Jan. 27 | ---- | unknown | --- | unknown | ---- |
| Nov. 14 | 0300 | 11,100 | 314 | 13.72 | 4.182 | Feb. 12 | ---- | unknown | --- | unknown | ---- |
| Nov. 23 | 1400 | 7,070 | 200 | 11.33 | 3.453 | Feb. 16 | ---- | unknown | --- | unknown | ---- |
| Dec. 2 | 0800 | 9,040 | 256 | 12.56 | 3.828 | Mar. 24 | 0700 | 8,430 | 239 | 12.18 | 3.712 |
| Dec. 26 | 0700 | *17,200 | 487 | *16.57 | 5.051 | | | | | | |

Minimum discharge, 52 ft³/s (1.47 m³/s), Aug. 11, 12, 13, minimum gage height, 3.16 ft (0.963 m) Oct. 1, 2.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 56 | 2460 | 5210 | 650 | 420 | 500 | 700 | 190 | 536 | 123 | 65 | 93 |
| 2 | 59 | 1910 | 8040 | 500 | 350 | 400 | 500 | 180 | 343 | 114 | 62 | 84 |
| 3 | 595 | 2440 | 6400 | 400 | 300 | 340 | 400 | 170 | 233 | 108 | 62 | 78 |
| 4 | 1170 | 2060 | 4800 | 2500 | 260 | 300 | 320 | 160 | 177 | 293 | 60 | 72 |
| 5 | 2400 | 2880 | 1230 | 1800 | 230 | 270 | 280 | 160 | 149 | 201 | 60 | 117 |
| 6 | 1060 | 3190 | 745 | 1350 | 210 | 250 | 240 | 156 | 132 | 132 | 60 | 142 |
| 7 | 510 | 1820 | 636 | 1100 | 200 | 230 | 220 | 149 | 126 | 362 | 57 | 111 |
| 8 | 568 | 1160 | 1920 | 1220 | 250 | 220 | 200 | 142 | 120 | 2160 | 57 | 90 |
| 9 | 1360 | 902 | 1280 | 1280 | 300 | 220 | 190 | 135 | 114 | 560 | 57 | 78 |
| 10 | 735 | 631 | 740 | 2180 | 400 | 500 | 180 | 169 | 117 | 301 | 55 | 72 |
| 11 | 396 | 577 | 550 | 1620 | 5000 | 400 | 200 | 273 | 126 | 201 | 55 | 70 |
| 12 | 240 | 938 | 505 | 1150 | 6000 | 350 | 180 | 188 | 225 | 159 | 55 | 67 |
| 13 | 183 | 2610 | 665 | 795 | 1600 | 310 | 170 | 149 | 194 | 135 | 87 | 70 |
| 14 | 938 | 6500 | 470 | 3350 | 1900 | 280 | 300 | 135 | 142 | 123 | 233 | 397 |
| 15 | 2090 | 3370 | 800 | 7000 | 1500 | 260 | 600 | 123 | 577 | 111 | 191 | 281 |
| 16 | 2500 | 1310 | 631 | 3000 | 5000 | 250 | 450 | 117 | 1020 | 102 | 321 | 152 |
| 17 | 7710 | 1030 | 456 | 1500 | 4500 | 900 | 370 | 120 | 383 | 96 | 209 | 111 |
| 18 | 2240 | 730 | 380 | 1000 | 1270 | 2390 | 330 | 123 | 229 | 90 | 132 | 93 |
| 19 | 3590 | 523 | 333 | 750 | 780 | 1150 | 310 | 111 | 170 | 87 | 111 | 84 |
| 20 | 932 | 430 | 308 | 600 | 600 | 1840 | 550 | 105 | 142 | 93 | 433 | 75 |
| 21 | 568 | 400 | 294 | 500 | 500 | 780 | 400 | 105 | 126 | 90 | 249 | 72 |
| 22 | 473 | 600 | 400 | 700 | 450 | 1490 | 330 | 102 | 120 | 84 | 142 | 70 |
| 23 | 352 | 4700 | 1200 | 550 | 1140 | 1540 | 300 | 99 | 117 | 81 | 111 | 70 |
| 24 | 280 | 1640 | 2980 | 450 | 1330 | 5420 | 500 | 114 | 111 | 78 | 145 | 67 |
| 25 | 2300 | 780 | 2360 | 350 | 895 | 1280 | 380 | 184 | 114 | 75 | 138 | 65 |
| 26 | 1790 | 2370 | 10000 | 500 | 880 | 1420 | 310 | 297 | 105 | 72 | 149 | 62 |
| 27 | 1900 | 986 | 4000 | 5000 | 845 | 1010 | 270 | 293 | 99 | 67 | 159 | 62 |
| 28 | 1510 | 577 | 1300 | 2500 | 1080 | 890 | 240 | 229 | 93 | 67 | 249 | 60 |
| 29 | 7160 | 436 | 2000 | 1300 | 700 | 600 | 220 | 213 | 90 | 65 | 177 | 60 |
| 30 | 3190 | 2690 | 1300 | 800 | --- | 700 | 200 | 446 | 96 | 65 | 123 | 57 |
| 31 | 1990 | --- | 900 | 550 | --- | 1000 | --- | 580 | --- | 65 | 105 | --- |
| TOTAL | 50845 | 52670 | 62833 | 46945 | 38890 | 27490 | 9840 | 5717 | 6326 | 6360 | 4169 | 2982 |
| MEAN | 1640 | 1756 | 2027 | 1514 | 1341 | 887 | 328 | 184 | 211 | 205 | 134 | 99.4 |
| MAX | 7710 | 6500 | 10000 | 7000 | 6000 | 5420 | 700 | 580 | 1020 | 2160 | 433 | 397 |
| MIN | 56 | 400 | 294 | 350 | 200 | 220 | 170 | 99 | 90 | 65 | 55 | 57 |
| CFSM | 21.6 | 23.1 | 26.7 | 19.9 | 17.6 | 11.7 | 4.32 | 2.42 | 2.78 | 2.70 | 1.76 | 1.31 |
| IN. | 24.89 | 25.78 | 30.75 | 22.98 | 19.04 | 13.46 | 4.82 | 2.80 | 3.10 | 3.11 | 2.04 | 1.46 |
| AC-FT | 100900 | 104500 | 124600 | 93120 | 77140 | 54530 | 19520 | 11340 | 12550 | 12620 | 8270 | 5910 |

CAL YR 1975 TOTAL 286857 MEAN 786 MAX 10000 MIN 49 CFSM 10.3 IN 140.41 AC-FT 569000
WTR YR 1976 TOTAL 315067 MEAN 861 MAX 10000 MIN 55 CFSM 11.3 IN 154.21 AC-FT 624900

NOTE.--No gage-height record Dec. 26 to Jan. 4, Jan. 15 to Feb. 17 and Mar. 29 to May 3.

## 12040500 QUEETS RIVER NEAR CLEARWATER, WA

LOCATION.--Lat 47°32'17", long 124°18'52", in NE¼SW¼ sec.36, T.24 N., R.13 W., Jefferson County, Hydrologic Unit 17100102, Quinault Indian Reservation, on right bank, 2.4 mi (3.9 km) downstream from mouth of Clearwater River, 0.8 mi (1.3 km) east of Queets and at mile 4.6 (7.4 km).

DRAINAGE AREA.--445 mi² (1,153 km²).

PERIOD OF RECORD.--September 1930 to November 1949, water years 1950-67 (annual maximum), April 1974 to current year.

REVISED RECORDS.--WSP 1316: 1931-49(M).

GAGE.--Water-stage recorder. Datum of gage is 14.5 ft (4.42 m) above mean sea level (river-profile survey). September 15, 1930 to January 22, 1935, at datum 4.0 ft (1.22 m) higher.

REMARKS.--Record excellent. No regulation or diversion above station.

AVERAGE DISCHARGE.--21 years (water years 1931-49, 1975-76), 4,200 ft³/s (118.9 m³/s), 128.17 in/yr (3,256 mm/yr), 3,043,000 acre-ft/yr (3,750 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,400 ft³/s (3,690 m³/s) Jan. 22, 1935, gage height, 27.0 ft (8.23 m) from flood marks, present datum; minimum, 368 ft³/s (10.4 m³/s) Sept. 9, 1944.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 42,000 ft³/s (1,190 m³/s), corrected, and maximum (*):

| Date | Time | Discharge (ft³/s) | (m³/s) | Gage height (ft) | (m) | Date | Time | Discharge (ft³/s) | (m³/s) | Gage height (ft) | (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 0900 | 66,200 | 1,870 | 20.62 | 6.285 | Dec. 26 | 1200 | 74,200 | 2,100 | 21.58 | 6.578 |
| Oct. 29 | 2300 | 47,900 | 1,360 | 18.23 | 5.557 | Jan. 15 | 0600 | 48,000 | 1,360 | 18.24 | 5.560 |
| Nov. 15 | 0500 | 46,800 | 1,330 | 18.07 | 5.508 | Jan. 27 | 0600 | 43,500 | 1,230 | 17.60 | 5.364 |
| Dec. 4 | 0300 | *77,600 | 2,200 | *21.95 | 6.690 | | | | | | |

Minimum discharge, 667 ft³/s (18.9 m³/s) Oct. 2, gage height, 5.88 ft (1.792 m).

DI-CHARGE. IN CU-IC FEET PER SECOND. WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 681 | 16900 | 21200 | 6320 | 3780 | 3920 | 4720 | 4140 | 3860 | 2780 | 1320 | 1330 |
| 2 | 681 | 13800 | 60500 | 5170 | 3390 | 3290 | 3900 | 4900 | 3190 | 2510 | 1260 | 1260 |
| 3 | 2250 | 20400 | 56600 | 4960 | 3080 | 2950 | 3380 | 3740 | 2800 | 2110 | 1300 | 1180 |
| 4 | 5960 | 19100 | 44100 | 13900 | 2800 | 2650 | 3170 | 3250 | 2560 | 3740 | 1310 | 1150 |
| 5 | 8800 | 17600 | 15500 | 11900 | 2560 | 2410 | 3160 | 3160 | 2320 | 2960 | 1270 | 1770 |
| 6 | 6090 | 18600 | 10000 | 8600 | 2380 | 2240 | 3440 | 2860 | 2290 | 2810 | 1260 | 1690 |
| 7 | 3440 | 16000 | 7880 | 7190 | 2210 | 2200 | 3260 | 2860 | 2350 | 2930 | 1270 | 1390 |
| 8 | 3270 | 12300 | 10300 | 10300 | 2390 | 2110 | 3440 | 3600 | 2390 | 6470 | 1240 | 1210 |
| 9 | 4190 | 9460 | 8630 | 9140 | 2560 | 2080 | 3960 | 3840 | 2350 | 4160 | 1190 | 1110 |
| 10 | 7630 | 7190 | 6670 | 12500 | 2420 | 3290 | 3620 | 4480 | 2360 | 3280 | 1190 | 1050 |
| 11 | 4590 | 6130 | 5450 | 14300 | 15300 | 3430 | 4780 | 4280 | 2320 | 2860 | 1200 | 1010 |
| 12 | 3370 | 6180 | 4760 | 9140 | 20700 | 2870 | 4420 | 3170 | 2930 | 2660 | 1180 | 990 |
| 13 | 2700 | 11400 | 4500 | 6670 | 9320 | 2770 | 3620 | 3190 | 2510 | 2360 | 1260 | 970 |
| 14 | 3930 | 31500 | 4040 | 14900 | 10300 | 2470 | 3940 | 2930 | 2050 | 2210 | 1890 | 2080 |
| 15 | 8920 | 29900 | 4880 | 41700 | 9350 | 2290 | 4920 | 2620 | 3340 | 2170 | 1600 | 1600 |
| 16 | 12200 | 13600 | 4260 | 22300 | 15300 | 2320 | 3780 | 2780 | 5350 | 2270 | 2950 | 1290 |
| 17 | 53400 | 9710 | 3720 | 11900 | 14700 | 5920 | 3340 | 2860 | 3620 | 2240 | 1870 | 1190 |
| 18 | 20100 | 7290 | 3440 | 9480 | 12400 | 15100 | 3160 | 2420 | 3460 | 2080 | 1410 | 1110 |
| 19 | 20300 | 5850 | 3320 | 6450 | 8330 | 9080 | 2980 | 2210 | 3340 | 1900 | 1330 | 1060 |
| 20 | 11600 | 4880 | 3140 | 5300 | 6170 | 8330 | 3820 | 2090 | 2950 | 1980 | 2810 | 1060 |
| 21 | 7900 | 4310 | 2960 | 4620 | 4860 | 6120 | 3370 | 1960 | 2620 | 1860 | 1920 | 1040 |
| 22 | 6030 | 4590 | 3470 | 4800 | 4240 | 10600 | 2450 | 2020 | 2420 | 1640 | 1540 | 1040 |
| 23 | 4800 | 24500 | 5550 | 4460 | 8840 | 8870 | 2810 | 1890 | 2240 | 1620 | 1380 | 1010 |
| 24 | 4120 | 15000 | 15600 | 3680 | 7880 | 19400 | 3760 | 2150 | 2170 | 1720 | 1560 | 940 |
| 25 | 7570 | 8940 | 11100 | 3290 | 6400 | 11600 | 3520 | 3140 | 2080 | 1690 | 1420 | 900 |
| 26 | 8750 | 14500 | 49200 | 3490 | 5520 | 10400 | 3160 | 3130 | 1890 | 1660 | 1590 | 884 |
| 27 | 10300 | 9220 | 19400 | 25600 | 6020 | 8690 | 2860 | 3470 | 1840 | 1520 | 1590 | 877 |
| 28 | 8380 | 6640 | 10900 | 9200 | 5620 | 7190 | 2890 | 3160 | 1940 | 1420 | 2300 | 869 |
| 29 | 27500 | 5260 | 12900 | 6500 | 4740 | 5470 | 3020 | 3140 | 2080 | 1530 | 1800 | 845 |
| 30 | 24100 | 10100 | 12700 | 5020 | --- | 5220 | 3430 | 3820 | 2080 | 1410 | 1580 | 822 |
| 31 | 13100 | --- | 8330 | 4280 | --- | 6320 | --- | 3520 | --- | 1330 | 1440 | --- |
| TOTAL | 311642 | 380850 | 436000 | 305360 | 203550 | 181600 | 107020 | 96780 | 79700 | 73930 | 48230 | 34727 |
| MEAN | 10050 | 12700 | 14060 | 9850 | 7019 | 5858 | 3567 | 3122 | 2657 | 2385 | 1556 | 1158 |
| MAX | 53400 | 31500 | 60500 | 41000 | 20700 | 19400 | 4920 | 4900 | 5350 | 6470 | 2950 | 2080 |
| MIN | 681 | 4310 | 2960 | 3290 | 2210 | 2080 | 2810 | 1890 | 1840 | 1330 | 1180 | 822 |
| CFSM | 22.6 | 28.5 | 31.6 | 22.1 | 15.8 | 13.2 | 8.02 | 7.02 | 5.97 | 5.36 | 3.50 | 2.60 |
| IN. | 26.05 | 31.84 | 36.45 | 25.53 | 17.02 | 15.18 | 8.95 | 8.09 | 6.66 | 6.18 | 4.03 | 2.90 |
| AC-FT | 618100 | 755400 | 864800 | 605700 | 403700 | 360200 | 212300 | 192000 | 158100 | 146600 | 95660 | 68880 |

CAL YR 1975 TOTAL 2045644 MEAN 5605 MAX 60500 MIN 681 CFSM 12.6 IN 171.01 AC-FT 4058000
WTR YR 1976 TOTAL 2259389 MEAN 6173 MAX 60500 MIN 681 CFSM 13.9 IN 188.87 AC-FT 4481000

## 12041200 HOH RIVER AT U.S. HIGHWAY 101, NEAR FORKS, WA

LOCATION.--Lat 47°48'25", long 124°14'59", in NE¼NE¼ sec.33, T.27 N., R.12 W., Jefferson County, Hydrologic Unit 17100101, on left bank 250 ft (76 m) downstream from U.S. Highway 101, 1.0 mi (1.6 km) downstream from Hell Roaring Creek, 11.5 mi (18.5 km) southeast of Forks, and at mile 15.4 (24.8 km).

DRAINAGE AREA.--253 m$^2$ (655 km$^2$).

PERIOD OF RECORD.--October 1960 to current year. Chemical analyses July 1960 to September 1961, November 1961, to September 1970 (partial-record station), October 1971 to September 1974. Prior to November 1961, published as 12041000, water temperatures: November 1970 to April 1971.

GAGE.--Water-stage recorder. Datum of gage is 163.64 ft (49.877 m) above mean sea level.

REMARKS.--Records excellent except those for periods of no gage-height record and Apr. 16, which are fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--16 years, 2,623 ft$^3$/s (74.28 m$^3$/s), 140.79 in/yr (3,576 mm/yr), 1,900,000 acre-ft/yr (2,340 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 46,000 ft$^3$/s (1,300 m$^3$/s) Jan. 15, 1961, gage height, 17.74 ft (5.407 m); minimum, 396 ft$^3$/s (11.2 m$^3$/s) Nov. 4, 1974; minimum gage height, 2.40 ft (0.732 m) Sept. 27, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 16,000 ft$^3$/s (453 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Oct. 17 | 1000 | 32,000 | 906 | 15.05 | 4.587 |
| Oct. 29 | 2200 | 17,900 | 507 | 11.55 | 3.520 |
| Nov. 15 | 0700 | 26,100 | 739 | 13.68 | 4.170 |
| Dec. 4 | 0400 | *41,200 | 1,170 | *17.01 | 5.185 |
| Dec. 26 | 1200 | 31,300 | 886 | 14.89 | 4.538 |

Minimum discharge, 648 ft$^3$/s (18.4 m$^3$/s) Oct. 1; minimum gage height, 3.74 ft (1.140 m) Sept. 13.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 678 | 6870 | 7770 | 2930 | 2600 | 2300 | 2300 | 2340 | 1960 | 2090 | 1510 | 1330 |
| 2 | 714 | 5950 | 28600 | 2560 | 2300 | 2100 | 1900 | 2940 | 1750 | 1930 | 1430 | 1240 |
| 3 | 1620 | 8620 | 29800 | 2430 | 2100 | 1900 | 1700 | 2410 | 1620 | 1860 | 1500 | 1180 |
| 4 | 3430 | 8170 | 23500 | 4130 | 1900 | 1800 | 1600 | 2120 | 1560 | 2650 | 1520 | 1200 |
| 5 | 4330 | 7800 | 7850 | 3750 | 1700 | 1700 | 1500 | 2040 | 1490 | 2460 | 1500 | 1540 |
| 6 | 3340 | 8120 | 5050 | 3070 | 1600 | 1600 | 1600 | 1880 | 1530 | 2560 | 1510 | 1520 |
| 7 | 1900 | 7000 | 3990 | 2810 | 1500 | 1500 | 1700 | 1900 | 1640 | 2610 | 1540 | 1280 |
| 8 | 1640 | 5690 | 4820 | 3530 | 1600 | 1450 | 1930 | 2470 | 1750 | 3530 | 1510 | 1120 |
| 9 | 3970 | 4530 | 4390 | 3180 | 1700 | 1400 | 2010 | 2700 | 1870 | 2880 | 1480 | 1010 |
| 10 | 3770 | 3580 | 3540 | 4360 | 1700 | 2100 | 1880 | 3120 | 1880 | 2400 | 1500 | 959 |
| 11 | 2350 | 3070 | 3000 | 4590 | 4270 | 2300 | 2160 | 2880 | 1870 | 2160 | 1520 | 945 |
| 12 | 1750 | 2950 | 2690 | 3320 | 5550 | 2000 | 2100 | 2320 | 1940 | 2110 | 1480 | 924 |
| 13 | 1430 | 4570 | 2490 | 2680 | 3360 | 1800 | 1880 | 2380 | 1790 | 1920 | 1490 | 889 |
| 14 | 1810 | 14900 | 2310 | 5830 | 3600 | 1700 | 1940 | 2240 | 1630 | 1850 | 1660 | 1340 |
| 15 | 3580 | 16800 | 2420 | 13200 | 3400 | 1600 | 1990 | 2030 | 2200 | 1880 | 1540 | 1210 |
| 16 | 6010 | 7350 | 2170 | 9350 | 5000 | 1700 | 1710 | 2100 | 3010 | 2040 | 1810 | 1120 |
| 17 | 26800 | 5290 | 1990 | 5570 | 4500 | 3500 | 1580 | 2170 | 2560 | 2110 | 1470 | 1120 |
| 18 | 11400 | 4030 | 1870 | 4120 | 3800 | 7000 | 1490 | 1880 | 2660 | 1980 | 1270 | 1040 |
| 19 | 10300 | 3390 | 1790 | 3250 | 3300 | 5000 | 1420 | 1750 | 2740 | 1810 | 1290 | 1020 |
| 20 | 6230 | 2880 | 1710 | 2790 | 2900 | 3900 | 1610 | 1690 | 2460 | 1940 | 1830 | 1090 |
| 21 | 4300 | 2610 | 1660 | 2520 | 2600 | 3200 | 1510 | 1600 | 2220 | 1890 | 1530 | 1160 |
| 22 | 3400 | 2730 | 1740 | 2640 | 2400 | 5000 | 1400 | 1640 | 2050 | 1670 | 1360 | 1200 |
| 23 | 2750 | 8800 | 2410 | 2490 | 3100 | 4500 | 1360 | 1570 | 1930 | 1710 | 1270 | 1120 |
| 24 | 2400 | 7180 | 4790 | 2200 | 3000 | 9000 | 1520 | 1720 | 1930 | 1850 | 1360 | 1030 |
| 25 | 3740 | 4910 | 3860 | 2020 | 2800 | 6500 | 1520 | 2020 | 1900 | 1850 | 1340 | 996 |
| 26 | 4190 | 6670 | 20700 | 2480 | 2700 | 5000 | 1410 | 1990 | 1710 | 1820 | 1410 | 1030 |
| 27 | 4300 | 4690 | 8270 | 8500 | 2800 | 4000 | 1350 | 2530 | 1680 | 1660 | 1410 | 1080 |
| 28 | 3560 | 3580 | 4790 | 5500 | 2900 | 3400 | 1410 | 2340 | 1800 | 1560 | 1710 | 1080 |
| 29 | 10200 | 2930 | 5450 | 4000 | 2600 | 2900 | 1520 | 2100 | 1980 | 1680 | 1570 | 1040 |
| 30 | 10300 | 4060 | 5050 | 3300 | --- | 2500 | 1830 | 2090 | 2020 | 1590 | 1480 | 973 |
| 31 | 5550 | --- | 3570 | 2900 | --- | 3000 | --- | 1940 | --- | 1510 | 1400 | --- |
| TOTAL | 151742 | 179720 | 204040 | 126000 | 83280 | 97350 | 50830 | 66900 | 59130 | 63560 | 46200 | 33786 |
| MEAN | 4895 | 5991 | 6582 | 4065 | 2872 | 3140 | 1694 | 2158 | 1971 | 2050 | 1490 | 1126 |
| MAX | 26800 | 16800 | 29800 | 13200 | 5550 | 9000 | 2300 | 3120 | 3010 | 3530 | 1830 | 1540 |
| MIN | 678 | 2610 | 1660 | 2020 | 1500 | 1400 | 1350 | 1570 | 1490 | 1510 | 1270 | 889 |
| CFSM | 19.3 | 23.7 | 26.0 | 16.1 | 11.4 | 12.4 | 6.70 | 8.53 | 7.79 | 8.10 | 5.89 | 4.45 |
| IN. | 22.31 | 26.43 | 30.00 | 18.53 | 12.25 | 14.31 | 7.47 | 9.84 | 8.69 | 9.35 | 6.79 | 4.97 |
| AC-FT | 301000 | 356500 | 404700 | 249900 | 165200 | 193100 | 100800 | 132700 | 117300 | 126100 | 91640 | 67010 |

CAL YR 1975 TOTAL 1038830 MEAN 2846 MAX 29800 MIN 666 CFSM 11.2 IN 152.74 AC-FT 2061000
WTR YR 1976 TOTAL 1162538 MEAN 3176 MAX 29800 MIN 678 CFSM 12.6 IN 170.93 AC-FT 2306000

NOTE.--No gage-height record Jan. 28 to Feb. 9 and Feb. 14 to Mar. 31.

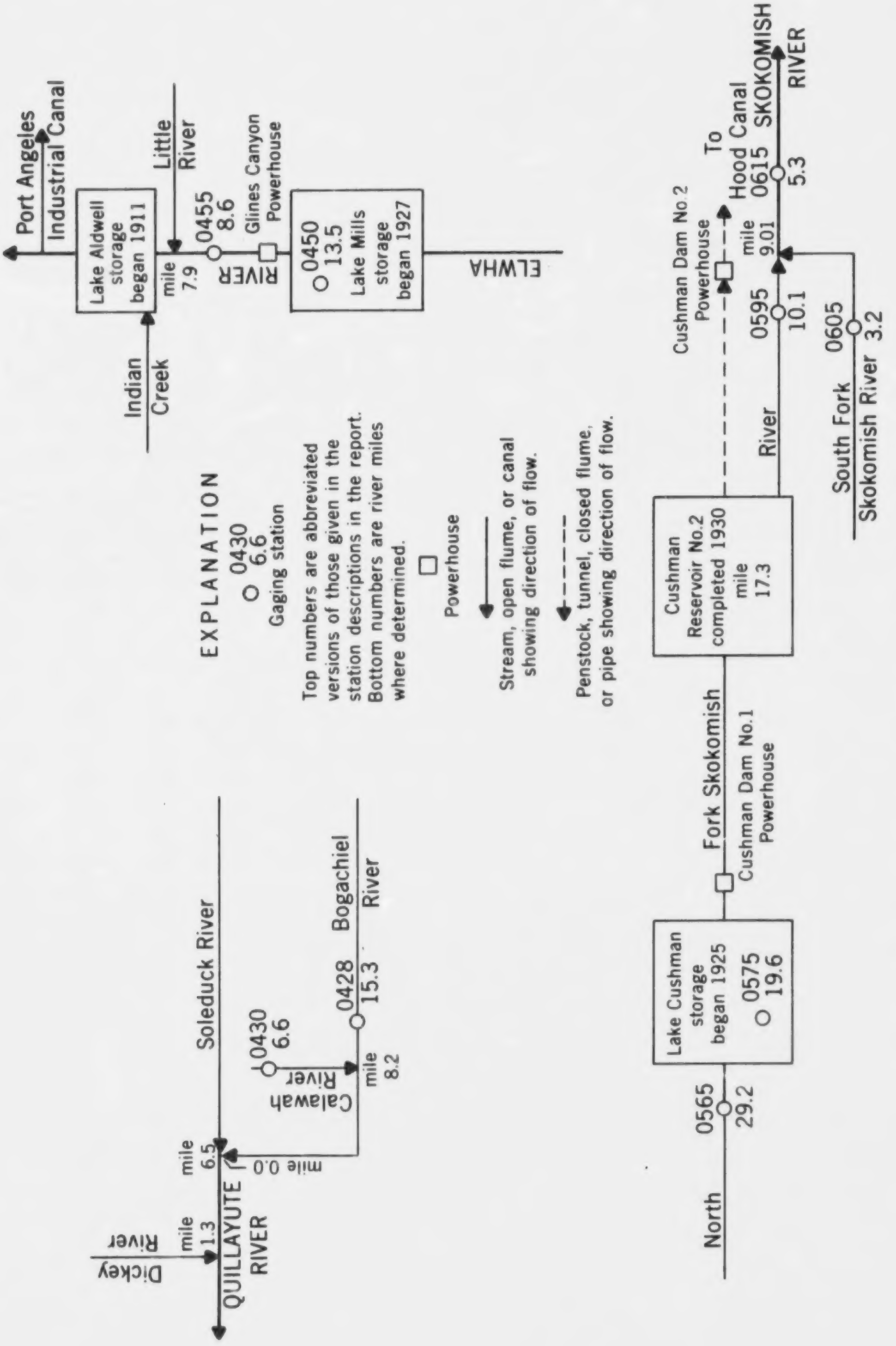
Port Angeles
Industrial Canal
Lake Aldwell storage began 1911
Indian Creek
Little River
mile 7.9
0455 8.6
Glines Canyon Powerhouse
RIVER
0450 13.5
Lake Mills storage began 1927
ELWHA
EXPLANATION
0430 6.6
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Dickey River
mile 1.3
QUILLAYUTE RIVER
mile 6.5
mile 0.0
Soleduck River
Calawah River
0430 6.6
mile 8.2
0428 15.3
Bogachiel River
North
0565 29.2
Lake Cushman storage began 1925
0575 19.6
Cushman Dam No.1 Powerhouse
Fork Skokomish
Cushman Reservoir No.2 completed 1930
mile 17.3
River
Cushman Dam No.2 Powerhouse
0595 10.1
mile 9.01
To Hood Canal
0615 5.3
SKOKOMISH RIVER
South Fork Skokomish River
0605 3.2

Figure 7. Gaging stations in Quillayute, Elwha, and Skokomish River basins.

## 12042800 BOGACHIEL RIVER NEAR FORKS, WA

LOCATION.--Lat 47°53'40", long 124°21'19", in NE¼NE¼ sec.34, T.28 N., R.13 W., Clallam County, Hydrologic Unit 17100101, on right bank 50 ft (15 m) downstream from U.S. Highway 101, 0.6 mi (1.0 km) downstream from Bear Creek, 4.2 mi (6.8 km) southeast of Forks, and at mile 15.3 (24.6 km).

DRAINAGE AREA.--111 mi² (287 km²).

PERIOD OF RECORD.--April 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 170 ft (52 m), from topographic map.

REMARKS.--Records good except those above 5,000 ft³/s (142 m³/s) and those for period of no gage-height record Oct. 17 to Nov. 25, which are fair. No regulation or diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,800 ft³/s (674 m³/s) Dec. 2, 1975, gage height, 15.81 ft (4.819 m); minimum, 136 ft³/s (3.85 m³/s) Aug. 14, 15, 16, 1975, gage height, 7.78 ft (2.371 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (312 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 0100 | 20,300 | 575 | 15.24 | 4.645 | Dec. 26 | 0800 | 19,100 | 541 | 15.04 | 4.584 |
| Oct. 29 | ---- | unknown | --- | unknown | --- | Jan. 15 | 0200 | 11,100 | 314 | 13.41 | 4.087 |
| Nov. 15 | 0200 | about<br>11,500 | 326 | 13.50 | 4.115 | Jan. 27 | 0200 | 13,800 | 391 | 14.03 | 4.276 |
| Dec. 2 | 2100 | *23,800 | 674 | *15.81 | 4.819 | | | | | | |

Minimum discharge, 144 ft³/s (4.08 m³/s) Sept. 30, gage height, 7.81 ft (2.380 m).

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976 MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 174 | 4000 | 4770 | 1240 | 813 | 804 | 1070 | 1330 | 1010 | 550 | 233 | 250 |
| 2 | 171 | 3500 | 17500 | 993 | 702 | 662 | 885 | 1480 | 849 | 510 | 233 | 230 |
| 3 | 524 | 5000 | 15500 | 966 | 614 | 582 | 759 | 1070 | 718 | 447 | 233 | 220 |
| 4 | 1050 | 4400 | 9620 | 2940 | 542 | 503 | 718 | 921 | 654 | 702 | 237 | 220 |
| 5 | 2380 | 4000 | 3320 | 2360 | 475 | 461 | 742 | 867 | 590 | 574 | 219 | 400 |
| 6 | 1510 | 4500 | 2030 | 1740 | 440 | 419 | 867 | 795 | 574 | 526 | 215 | 340 |
| 7 | 770 | 3300 | 1540 | 1550 | 412 | 433 | 831 | 804 | 606 | 518 | 215 | 310 |
| 8 | 639 | 2500 | 2670 | 2550 | 510 | 419 | 1000 | 1120 | 638 | 867 | 211 | 285 |
| 9 | 1210 | 1900 | 2000 | 2040 | 510 | 412 | 1020 | 1170 | 622 | 686 | 203 | 251 |
| 10 | 1050 | 1500 | 1450 | 3480 | 574 | 822 | 921 | 1420 | 582 | 566 | 203 | 233 |
| 11 | 695 | 1200 | 1130 | 3420 | 3650 | 795 | 1170 | 1320 | 542 | 489 | 199 | 219 |
| 12 | 548 | 1000 | 948 | 1940 | 4950 | 646 | 1100 | 966 | 646 | 468 | 200 | 219 |
| 13 | 464 | 2500 | 831 | 1620 | 2480 | 606 | 930 | 930 | 574 | 412 | 220 | 211 |
| 14 | 1010 | 7000 | 768 | 4860 | 2850 | 534 | 1020 | 822 | 503 | 391 | 350 | 440 |
| 15 | 1910 | 8000 | 966 | 8410 | 2320 | 489 | 1070 | 702 | 840 | 377 | 270 | 305 |
| 16 | 6070 | 4500 | 795 | 4320 | 3800 | 510 | 831 | 759 | 1070 | 412 | 496 | 260 |
| 17 | 15000 | 2500 | 710 | 2550 | 3440 | 1630 | 750 | 876 | 795 | 391 | 300 | 233 |
| 18 | 8000 | 1500 | 662 | 1920 | 3010 | 3720 | 710 | 670 | 795 | 346 | 228 | 224 |
| 19 | 6000 | 1100 | 630 | 1390 | 1920 | 2120 | 654 | 598 | 742 | 334 | 220 | 215 |
| 20 | 3500 | 900 | 566 | 1130 | 1370 | 1790 | 867 | 566 | 598 | 364 | 500 | 199 |
| 21 | 2000 | 800 | 534 | 1000 | 1060 | 1420 | 768 | 518 | 518 | 334 | 350 | 195 |
| 22 | 1200 | 900 | 638 | 1080 | 1000 | 2760 | 670 | 518 | 482 | 300 | 280 | 187 |
| 23 | 900 | 6000 | 1180 | 975 | 2290 | 2160 | 622 | 503 | 447 | 290 | 240 | 187 |
| 24 | 750 | 3500 | 3480 | 795 | 2030 | 4400 | 777 | 598 | 461 | 305 | 260 | 179 |
| 25 | 1200 | 2000 | 2560 | 702 | 1560 | 2830 | 759 | 822 | 461 | 300 | 250 | 171 |
| 26 | 2000 | 3370 | 12100 | 1880 | 1260 | 2420 | 678 | 840 | 398 | 290 | 270 | 164 |
| 27 | 2500 | 2020 | 4020 | 6150 | 1250 | 1880 | 630 | 1010 | 370 | 280 | 300 | 161 |
| 28 | 2100 | 1350 | 2340 | 2100 | 1140 | 1540 | 702 | 903 | 405 | 270 | 430 | 161 |
| 29 | 7000 | 1010 | 3160 | 1480 | 984 | 1230 | 813 | 867 | 433 | 260 | 370 | 154 |
| 30 | 4500 | 2060 | 2830 | 1130 | --- | 1190 | 1060 | 984 | 426 | 265 | 320 | 150 |
| 31 | 3300 | --- | 1720 | 948 | --- | 1440 | --- | 957 | --- | 242 | 280 | --- |
| TOTAL | 80125 | 87810 | 102968 | 69659 | 47956 | 41627 | 25394 | 27706 | 18349 | 13066 | 8535 | 6973 |
| MEAN | 2585 | 2927 | 3322 | 2247 | 1654 | 1343 | 846 | 894 | 612 | 421 | 275 | 232 |
| MAX | 15000 | 8000 | 17500 | 8410 | 4950 | 4400 | 1170 | 1480 | 1070 | 867 | 500 | 440 |
| MIN | 171 | 800 | 534 | 702 | 412 | 412 | 622 | 503 | 370 | 242 | 199 | 150 |
| CFSM | 23.3 | 26.4 | 29.9 | 20.2 | 14.9 | 12.1 | 7.62 | 8.05 | 5.51 | 3.79 | 2.48 | 2.09 |
| IN. | 26.85 | 29.43 | 34.51 | 23.34 | 16.07 | 13.95 | 8.51 | 9.29 | 6.15 | 4.38 | 2.86 | 2.34 |
| AC-FT | 158900 | 174200 | 204200 | 138200 | 95120 | 82570 | 50370 | 54950 | 36400 | 25920 | 16930 | 13830 |

WTR YR 1976 TOTAL 530168 MEAN 1449 MAX 17500 MIN 150 CFSM 13.1 IN 177.68 AC-FT 1052000

## 12043000 CALAWAH RIVER NEAR FORKS, WA

LOCATION.--Lat 47°57'37", long 124°23'30", in NW¼SW¼ sec.4, T.28 N., R.13 W., Clallam County, Hydrologic Unit 17100101, on left bank 30 ft (9 m) downstream from U.S. Highway 101 bridge, 0.8 mi (1.3 km) northwest of Forks, and at mile 6.6 (10.6 km).

DRAINAGE AREA.--129 mi$^2$ (334 km$^2$).

PERIOD OF RECORD.--November 1897 to December 1901, October to December 1975 (discharge measurements and peak discharges), January to September 1976. Monthly and peak discharge only, November 1897 and August 1898, published in WSP 1316. Published as Calowa River at Forks, November 1897 to December 1899; as Calowa River near Forks, 1900; and as Kalawa River near Forks, 1901.

REVISED RECORDS.--WSP 1316: 1898-1902. WSP 1736: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 201.58 ft (61.442 m) above mean sea level. November 1897 to December 1901, nonrecording gage at same site but at different datum; October to December 1975, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good. No regulation or diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,600 ft$^3$/s (640 m$^3$/s) Dec. 2, 1975, gage height, 16.99 ft (5.179 m), from rating curve extended above 4,600 ft$^3$/s (130 m$^3$/s) on basis of step-backwater analysis; maximum gage height, 17.2 ft (5.24 m), from graph based on gage readings, Nov. 18, 1897; minimum, 15 ft$^3$/s (0.42 m$^3$/s) Sept. 28, 1899.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10,000 ft$^3$/s (283 m$^3$/s) and maximum (*) from rating curve extended as explained above:

| | | Discharge | | Gage height | | | | Discharge | | Gage height | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | (ft$^3$/s) | (m$^3$/s) | (ft) | (m) | Date | Time | (ft$^3$/s) | (m$^3$/s) | (ft) | (m) |
| Oct. 17 | about 0900 | 16,700 | 473 | 14.98 | 4.566 | Dec. 2 | about 2100 | *22,600 | 640 | *16.99 | 5.179 |
| Oct. 29 | unknown | unknown | --- | unknown | --- | Dec. 26 | about 1200 | 20,300 | 575 | 16.23 | 4.947 |
| Nov. 15 | unknown | unknown | --- | unknown | --- | Jan. 15 | 0400 | 11,000 | 312 | 12.61 | 3.844 |

Minimum discharge observed, 108 ft$^3$/s (3.06 m$^3$/s) Oct. 1, gage height, 2.82 ft (0.860 m).

DISCHARGE, IN CUBIC FEET PER SECONU, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 1300 | 846 | 984 | 1500 | 1170 | 906 | 328 | 140 | 190 |
| 2 | | | | 1100 | 745 | 858 | 1200 | 1130 | 762 | 308 | 138 | 180 |
| 3 | | | | 950 | 670 | 768 | 1050 | 810 | 630 | 270 | 136 | 170 |
| 4 | | | | 2500 | 600 | 700 | 978 | 720 | 535 | 384 | 132 | 190 |
| 5 | | | | 2200 | 535 | 645 | 1000 | 720 | 472 | 308 | 130 | 250 |
| 6 | | | | 2000 | 496 | 600 | 1100 | 630 | 436 | 279 | 128 | 230 |
| 7 | | | | 1800 | 468 | 605 | 1000 | 635 | 436 | 285 | 126 | 210 |
| 8 | | | | 2200 | 550 | 590 | 1100 | 774 | 400 | 448 | 124 | 195 |
| 9 | | | | 2000 | 520 | 600 | 1050 | 780 | 360 | 392 | 122 | 185 |
| 10 | | | | 4300 | 655 | 1100 | 942 | 882 | 352 | 352 | 120 | 173 |
| 11 | | | | 3500 | 2990 | 1230 | 1060 | 870 | 344 | 312 | 115 | 165 |
| 12 | | | | 2300 | 5180 | 984 | 1010 | 645 | 420 | 291 | 114 | 160 |
| 13 | | | | 1600 | 2650 | 850 | 858 | 600 | 416 | 273 | 130 | 156 |
| 14 | | | | 4390 | 3120 | 750 | 906 | 515 | 356 | 252 | 187 | 267 |
| 15 | | | | 8760 | 2520 | 700 | 972 | 456 | 503 | 240 | 165 | 208 |
| 16 | | | | 4630 | 4000 | 750 | 822 | 472 | 575 | 225 | 228 | 175 |
| 17 | | | †895 | 2700 | 3810 | 2000 | 768 | 515 | 488 | 213 | 177 | 168 |
| 18 | | | | 1940 | 3510 | 4000 | 730 | 424 | 444 | 202 | 148 | 160 |
| 19 | | | | 1460 | 2300 | 2500 | 685 | 384 | 396 | 195 | 154 | 156 |
| 20 | | †1,320 | | 1100 | 1690 | 2000 | 816 | 352 | 352 | 202 | 336 | 148 |
| 21 | | | | 1000 | 1360 | 1700 | 780 | 332 | 320 | 195 | 231 | 144 |
| 22 | | | | 1040 | 1250 | 2800 | 700 | 320 | 304 | 185 | 190 | 140 |
| 23 | | | | 942 | 2750 | 2300 | 655 | 312 | 288 | 180 | 172 | 136 |
| 24 | | | | 828 | 2290 | 5000 | 768 | 391 | 288 | 170 | 170 | 134 |
| 25 | | | | 750 | 1920 | 3500 | 780 | 496 | 288 | 165 | 170 | 132 |
| 26 | | | | 1100 | 1560 | 2700 | 725 | 535 | 261 | 160 | 180 | 130 |
| 27 | | | | 5460 | 1420 | 2200 | 685 | 635 | 246 | 156 | 190 | 128 |
| 28 | | | | 2140 | 1290 | 1800 | 756 | 620 | 237 | 152 | 280 | 126 |
| 29 | | | | 1510 | 1150 | 1500 | 834 | 650 | 228 | 148 | 250 | 124 |
| 30 | | | | 1190 | --- | 1600 | 1030 | 745 | 237 | 146 | 230 | 122 |
| 31 | | | | 996 | --- | 1900 | --- | 798 | --- | 144 | 210 | --- |
| TOTAL | | | | 69686 | 52845 | 50214 | 27260 | 19318 | 12280 | 7560 | 5323 | 5052 |
| MEAN | | | | 2248 | 1822 | 1620 | 909 | 623 | 409 | 244 | 172 | 168 |
| MAX | | | | 8760 | 5180 | 5000 | 1500 | 1170 | 906 | 448 | 336 | 267 |
| MIN | | | | 750 | 468 | 590 | 655 | 312 | 228 | 144 | 114 | 122 |
| CFSM | | | | 17.4 | 14.1 | 12.6 | 7.05 | 4.83 | 3.17 | 1.89 | 1.33 | 1.30 |
| IN. | | | | 20.10 | 15.24 | 14.48 | 7.86 | 5.57 | 3.54 | 2.18 | 1.53 | 1.46 |
| AC-FT | | | | 138200 | 104800 | 99600 | 54070 | 38320 | 24360 | 15000 | 10560 | 10020 |

† Result of discharge measurement.

## 12043149 OZETTE LAKE AT OZETTE, WA

LOCATION.--Lat 48°09'12", long 124°40'05", in NE¼NE¼ sec.31, T.31N., R.15 W., Clallam County, Hydrologic Unit 17100101, 3 mi (4.8 km) southeast of Cape Alava. Samples were taken in the north end and in the main body of the lake.

DRAINAGE AREA.--77.5 mi² (200.7 km²).

PERIOD OF RECORD.--February to September 1976.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | COLOR (PLAT-INUM-COBALT UNITS) | DIS-SOLVED OXYGEN (MG/L) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 19... | 0935 | 30 | 39 | 7.1 | 6.3 | 25 | 11.7 | -- | -- |
| 19... | 0945 | 60 | 39 | -- | 6.2 | -- | 11.8 | -- | -- |
| 19... | 0955 | 90 | 39 | 7.1 | 6.2 | 30 | 11.7 | 9 | 3 |
| 19... | 1400 | 60 | 39 | 6.8 | 6.5 | 30 | 11.8 | -- | -- |
| 19... | 1410 | 140 | 39 | -- | 6.5 | -- | 11.8 | -- | -- |
| 19... | 1420 | 220 | 39 | 6.8 | 6.5 | 30 | 11.8 | 10 | 0 |
| 20... | 1210 | 80 | 40 | 7.2 | 6.4 | 30 | 11.5 | -- | -- |
| 20... | 1220 | 160 | 40 | -- | 6.4 | -- | 11.6 | -- | -- |
| 20... | 1230 | 260 | 40 | 6.8 | 6.4 | 30 | 11.4 | 10 | 2 |
| 20... | 1415 | 80 | 40 | 6.4 | 6.5 | 30 | 11.6 | -- | -- |
| 20... | 1425 | 160 | 40 | -- | 6.4 | -- | 11.5 | -- | -- |
| 20... | 1435 | 260 | 40 | 6.6 | 6.4 | 30 | 11.5 | 13 | 4 |
| MAR | | | | | | | | | |
| 31... | 1030 | 80 | 39 | 6.8 | 6.1 | 20 | 11.9 | -- | -- |
| 31... | 1040 | 160 | -- | -- | 6.0 | -- | 11.8 | -- | -- |
| 31... | 1050 | 260 | 38 | 6.8 | 6.0 | 20 | 11.8 | -- | -- |
| 31... | 1230 | 60 | 37 | 6.4 | 6.1 | 20 | 11.8 | -- | -- |
| 31... | 1240 | 100 | -- | -- | 6.1 | -- | 11.8 | -- | -- |
| APR | | | | | | | | | |
| 01... | 0900 | 80 | 37 | 6.8 | 6.1 | 20 | 12.1 | -- | -- |
| 01... | 0910 | 160 | -- | -- | 6.0 | -- | 12.0 | -- | -- |
| 01... | 0920 | 260 | 38 | 6.8 | 6.0 | 20 | 11.9 | -- | -- |
| 01... | 1100 | 30 | 37 | 7.4 | 6.3 | 20 | 12.3 | -- | -- |
| 01... | 1110 | 60 | -- | -- | 6.2 | -- | 12.3 | -- | -- |
| 01... | 1120 | 90 | 39 | 7.2 | 6.2 | 20 | 12.2 | -- | -- |
| 27... | 0930 | 80 | -- | 7.1 | 7.3 | 20 | 11.2 | -- | -- |
| 27... | 0940 | 160 | -- | -- | 6.7 | -- | 11.1 | -- | -- |
| 27... | 0950 | 250 | -- | 7.1 | 6.3 | 20 | 11.0 | -- | -- |
| 27... | 1230 | 30 | -- | 7.0 | 8.0 | 25 | 11.3 | -- | -- |
| 27... | 1240 | 60 | -- | -- | 7.5 | -- | 11.2 | -- | -- |
| 27... | 1250 | 90 | -- | 7.1 | 6.9 | 25 | 11.1 | -- | -- |
| MAY | | | | | | | | | |
| 25... | 0930 | 30 | 37 | 6.9 | 12.3 | 25 | 9.9 | -- | -- |
| 25... | 0940 | 100 | -- | -- | 7.5 | -- | 10.2 | -- | -- |
| 25... | 0950 | 220 | 38 | 6.6 | 6.6 | 25 | 10.1 | -- | -- |
| 25... | 1230 | 30 | 37 | 6.8 | 11.8 | 30 | 10.0 | -- | -- |
| 25... | 1240 | 100 | -- | -- | 7.5 | -- | 10.2 | -- | -- |
| 25... | 1250 | 260 | 37 | 6.6 | 6.6 | 30 | 10.1 | -- | -- |
| 27... | 0930 | 40 | 36 | 7.1 | 12.6 | 30 | 9.8 | -- | -- |
| 27... | 0940 | 70 | -- | -- | 7.8 | -- | 9.8 | -- | -- |

## 12043149 OZETTE LAKE AT OZETTE, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | ALKA-LINITY AS CACO3 (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED SILICA (SIO2) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 19... | 2.2 | .8 | 3.3 | .6 | 7 | 6 | 2.9 | 4.2 | 2.6 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | 2.7 |
| 19... | 2.6 | .9 | 3.6 | .6 | 12 | 10 | 2.7 | 4.3 | 2.6 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 20... | 2.4 | .9 | 3.7 | .3 | 9 | 7 | 3.5 | 4.8 | 2.6 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 20... | 3.7 | 1.0 | 3.7 | .6 | 11 | 9 | 4.1 | 4.3 | 2.7 |
| MAR | | | | | | | | | |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | 2.7 |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | 2.8 |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | 2.7 |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | 2.7 |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | 2.7 |
| APR | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | 2.8 |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | 2.8 |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | 2.8 |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | 2.7 |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | 2.8 |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | 3.1 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| MAY | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | 2.7 |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | 2.8 |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | 2.7 |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | 2.7 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | 2.6 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | 2.7 |

| DATE | DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | DIS-SOLVED IRON (FE) (UG/L) | DIS-SOLVED MAN-GANESE (MN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 19... | -- | .10 | .00 | .06 | .20 | .01 | .00 | -- | -- |
| 19... | -- | .09 | .00 | .05 | .18 | .01 | .00 | -- | -- |
| 19... | 20 | .10 | .00 | .05 | .17 | .01 | .00 | 130 | 0 |
| 19... | -- | .10 | .00 | .04 | .20 | .01 | .00 | -- | -- |
| 19... | -- | .10 | .00 | .05 | .17 | .01 | .00 | -- | -- |
| 19... | 23 | .11 | .00 | .06 | .20 | .01 | .00 | 110 | 0 |
| 20... | -- | .20 | .00 | .05 | .20 | .01 | .00 | -- | -- |
| 20... | -- | .10 | .00 | .05 | .19 | .01 | .00 | -- | -- |
| 20... | 23 | .11 | .00 | .06 | .19 | .01 | .00 | 120 | 0 |
| 20... | -- | .10 | .00 | .04 | .15 | .01 | .01 | -- | -- |
| 20... | -- | .10 | .00 | .05 | .20 | .01 | .00 | -- | -- |
| 20... | 26 | .11 | .00 | .05 | .17 | .01 | .00 | 120 | 0 |
| MAR | | | | | | | | | |
| 31... | -- | .08 | .01 | .06 | .14 | .01 | .00 | -- | -- |
| 31... | -- | .08 | .01 | .06 | .12 | .01 | .00 | -- | -- |
| 31... | -- | .09 | .00 | .05 | .14 | .01 | .00 | -- | -- |
| 31... | -- | .09 | .00 | .06 | .12 | .01 | .00 | -- | -- |
| 31... | -- | .08 | .01 | .06 | .17 | .01 | .00 | -- | -- |
| APR | | | | | | | | | |
| 01... | -- | .08 | .01 | .05 | .14 | .01 | .00 | -- | -- |
| 01... | -- | .09 | .00 | .04 | .14 | .01 | .00 | -- | -- |
| 01... | -- | .09 | .00 | .05 | .20 | .01 | .00 | -- | -- |
| 01... | -- | .08 | .00 | .04 | .14 | .01 | .00 | -- | -- |
| 01... | -- | .07 | .01 | .06 | .14 | .01 | .00 | -- | -- |
| 01... | -- | .16 | .00 | .06 | .18 | .01 | .00 | -- | -- |
| 27... | -- | .06 | .00 | .08 | .14 | .01 | .00 | -- | -- |
| 27... | -- | .07 | .00 | .05 | .18 | .01 | .00 | -- | -- |
| 27... | -- | .07 | .00 | .06 | .17 | .01 | .01 | -- | -- |
| 27... | -- | .06 | .00 | .06 | .19 | .01 | .00 | -- | -- |
| 27... | -- | .06 | .00 | .06 | .15 | .01 | .00 | -- | -- |
| 27... | -- | .07 | .00 | .06 | .14 | .01 | .00 | -- | -- |
| MAY | | | | | | | | | |
| 25... | -- | .05 | .00 | .04 | .18 | .01 | .00 | -- | -- |
| 25... | -- | .19 | .00 | .06 | .14 | .01 | .00 | -- | -- |
| 25... | -- | .09 | .00 | .04 | .17 | .01 | .00 | -- | -- |
| 25... | -- | .06 | .00 | .04 | .24 | .02 | .00 | -- | -- |
| 25... | -- | .08 | .00 | .04 | .34 | .01 | .00 | -- | -- |
| 25... | -- | .10 | .00 | .03 | .23 | .01 | .00 | -- | -- |
| 27... | -- | .05 | .00 | .04 | .16 | .01 | .00 | -- | -- |
| 27... | -- | .08 | .00 | .03 | .22 | .01 | .00 | -- | -- |

## 12043149 OZETTE LAKE AT OZETTE, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | COLOR (PLAT-INUM-COBALT UNITS) | DIS-SOLVED OXYGEN (MG/L) | DIS-SOLVED SILICA (SIO2) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | |
| 27... | 0950 | 90 | 39 | 6.7 | 7.1 | 30 | 9.9 | 2.7 |
| JUN | | | | | | | | |
| 22... | 1030 | 15 | 36 | 6.6 | 15.3 | 30 | 10.0 | 2.2 |
| 22... | 1040 | 57 | 36 | 6.6 | 10.0 | -- | 9.6 | 2.6 |
| 22... | 1050 | 170 | 35 | 6.6 | 7.2 | 30 | 10.4 | 2.7 |
| 22... | 1240 | 15 | 36 | 6.6 | 15.8 | 35 | 10.1 | 2.3 |
| 22... | 1250 | 57 | 36 | 6.6 | 10.3 | -- | 9.9 | 2.6 |
| 22... | 1300 | 180 | 36 | 6.6 | 7.3 | 30 | 10.4 | 2.7 |
| 22... | 1500 | 15 | 36 | 6.6 | 16.1 | 30 | 9.8 | 2.2 |
| 22... | 1510 | 57 | 36 | 6.6 | 10.1 | -- | 9.7 | 2.7 |
| 22... | 1520 | 200 | 37 | 6.7 | 7.0 | 35 | 10.0 | 2.8 |
| 22... | 1700 | 15 | 36 | 6.6 | 15.0 | 30 | 10.0 | 2.3 |
| 22... | 1710 | 57 | 36 | 6.6 | 9.0 | -- | 10.1 | 2.6 |
| 22... | 1720 | 88 | 36 | 6.6 | 8.0 | 30 | 10.2 | 2.7 |
| JUL | | | | | | | | |
| 20... | 0955 | 16 | 36 | 7.2 | 18.6 | 25 | 9.2 | 1.7 |
| 20... | 1005 | 70 | 37 | -- | 9.4 | -- | 9.6 | 2.5 |
| 20... | 1015 | 240 | 38 | 6.7 | 6.8 | 35 | 10.0 | 2.7 |
| 20... | 1115 | 16 | 36 | 7.2 | 18.5 | 25 | 9.2 | 1.8 |
| 20... | 1120 | 70 | 37 | -- | 9.5 | -- | 9.4 | 2.5 |
| 20... | 1130 | 240 | 39 | -- | 6.8 | 35 | 9.6 | 2.8 |
| 21... | 0935 | 25 | 37 | 7.4 | 18.0 | 35 | 9.1 | 1.7 |
| 21... | 0940 | 80 | 38 | -- | 8.7 | -- | 9.5 | 2.5 |
| 21... | 0950 | 240 | 39 | 6.8 | 6.8 | 35 | 9.7 | 2.7 |
| 21... | 1045 | 25 | 36 | 7.6 | 18.1 | 35 | 9.3 | 1.6 |
| 21... | 1050 | 50 | 37 | -- | 11.0 | -- | 9.1 | 2.2 |
| 21... | 1055 | 90 | 38 | 6.7 | 8.1 | 35 | 9.4 | 2.7 |
| AUG | | | | | | | | |
| 26... | 0915 | 20 | 34 | 5.9 | 17.0 | 35 | 9.0 | 1.4 |
| 26... | 0925 | 60 | -- | -- | 9.8 | -- | 9.0 | 2.7 |
| 26... | 0935 | 190 | -- | -- | 7.0 | -- | 9.7 | 2.8 |
| 26... | 1100 | 20 | 36 | 5.9 | 17.0 | 35 | 9.1 | 1.4 |
| 26... | 1110 | 60 | -- | -- | 10.0 | -- | 9.0 | 2.6 |
| 26... | 1120 | 185 | -- | -- | 7.0 | -- | 9.7 | 2.8 |
| 26... | 1330 | 20 | 36 | 5.9 | 17.2 | 35 | 9.1 | 1.4 |
| 26... | 1340 | 60 | -- | -- | 10.0 | -- | 9.2 | 2.7 |
| 26... | 1350 | 185 | -- | -- | 7.0 | -- | 9.8 | 2.8 |
| 26... | 1530 | 20 | 34 | 5.9 | 17.2 | 35 | 9.1 | 1.4 |
| 26... | 1540 | 60 | -- | -- | 10.3 | -- | 8.8 | 2.6 |
| 26... | 1550 | 85 | -- | -- | 8.0 | -- | 9.1 | 2.7 |

| DATE | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | POTEN-TIAL ALGAL GROWTH BOTTLE TEST (MG/L) |
|---|---|---|---|---|---|---|---|
| MAY | | | | | | | |
| 27... | .09 | .00 | .04 | .18 | .01 | .00 | -- |
| JUN | | | | | | | |
| 22... | .03 | .00 | .03 | .22 | .01 | .00 | -- |
| 22... | .07 | .00 | .03 | .17 | .01 | .00 | -- |
| 22... | .10 | .00 | .03 | .19 | .01 | .00 | -- |
| 22... | .03 | .00 | .04 | .25 | .01 | .00 | -- |
| 22... | .07 | .00 | .04 | .34 | .01 | .00 | -- |
| 22... | .10 | .00 | .04 | .21 | .01 | .00 | -- |
| 22... | .03 | .00 | .03 | .20 | .01 | .01 | -- |
| 22... | .07 | .00 | .04 | .17 | .01 | .00 | -- |
| 22... | .10 | .00 | .03 | .19 | .01 | .00 | -- |
| 22... | .03 | .00 | .03 | .21 | .01 | .00 | -- |
| 22... | .06 | .00 | .03 | .21 | .01 | .00 | -- |
| 22... | .09 | .00 | .03 | .17 | .01 | .01 | -- |
| JUL | | | | | | | |
| 20... | .00 | .00 | .06 | .33 | .01 | .00 | -- |
| 20... | .06 | .00 | .07 | .31 | .01 | .00 | -- |
| 20... | .09 | .00 | .05 | .22 | .00 | .00 | -- |
| 20... | .00 | .00 | .05 | .19 | .01 | .00 | -- |
| 20... | .05 | .00 | .07 | .20 | .01 | .00 | -- |
| 20... | .07 | .00 | .04 | .23 | .01 | .00 | -- |
| 21... | .00 | .00 | .06 | .24 | .01 | .00 | -- |
| 21... | .05 | .00 | .05 | .18 | .01 | .00 | -- |
| 21... | .08 | .00 | .04 | .13 | .01 | .00 | -- |
| 21... | .00 | .00 | .05 | .16 | .01 | .00 | -- |
| 21... | .04 | .00 | .05 | .16 | .01 | .01 | -- |
| 21... | .09 | .00 | .04 | .14 | .00 | .00 | -- |
| AUG | | | | | | | |
| 26... | .01 | .00 | .04 | .17 | .01 | .00 | .3 |
| 26... | .07 | .00 | .04 | .15 | .01 | .00 | -- |
| 26... | .08 | .01 | .03 | .10 | .01 | .00 | -- |
| 26... | .00 | .01 | .04 | .17 | .01 | .00 | .3 |
| 26... | .07 | .01 | .04 | .20 | .02 | .00 | -- |
| 26... | .10 | .00 | .04 | .18 | .00 | .00 | -- |
| 26... | .08 | .01 | .04 | .17 | .01 | .00 | .3 |
| 26... | .07 | .01 | .04 | .15 | .01 | .00 | -- |
| 26... | .10 | .00 | .04 | .16 | .01 | .01 | -- |
| 26... | .00 | .00 | .03 | .17 | .02 | .00 | -- |
| 26... | .06 | .00 | .04 | .19 | .01 | .00 | -- |
| 26... | .10 | .00 | .04 | .20 | .01 | .00 | -- |

## 12043149 OZETTE LAKE AT OZETTE, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE (DEG C) | DISSOLVED OXYGEN (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP | | | | | | | | | | | | |
| 28... | 0945 | 12 | 38 | 17.2 | 9.2 | 1.3 | .00 | .00 | .08 | .16 | .01 | .01 |
| 28... | 0950 | 100 | -- | 8.0 | 9.3 | 2.5 | .04 | .00 | .07 | .22 | .01 | .01 |
| 28... | 1000 | 250 | 40 | 6.8 | 9.0 | 2.8 | .04 | .01 | .10 | .16 | .01 | .01 |
| 28... | 1120 | 36 | 39 | 16.7 | 9.0 | 1.4 | .00 | .00 | .07 | .16 | .01 | .00 |
| 28... | 1130 | 100 | -- | 8.1 | 9.4 | 2.5 | .04 | .00 | .06 | .12 | .01 | .01 |
| 28... | 1140 | 240 | 41 | 6.8 | 8.2 | 3.0 | .05 | .00 | .07 | .16 | .01 | .01 |
| 28... | 1330 | 28 | 38 | 17.3 | 9.2 | 1.4 | .00 | .00 | .08 | .12 | .01 | .01 |
| 28... | 1340 | 100 | -- | 8.1 | 9.4 | 2.6 | .04 | .00 | .03 | .12 | .01 | .00 |
| 28... | 1350 | 250 | 40 | 6.9 | 9.2 | 2.9 | .05 | .00 | .06 | .11 | .01 | .01 |
| 28... | 1500 | 24 | 37 | 17.5 | 9.3 | 1.4 | .00 | .00 | .06 | .15 | .01 | .00 |
| 28... | 1510 | 60 | -- | 10.1 | 8.3 | 2.2 | .05 | .00 | .06 | .13 | .01 | .00 |
| 28... | 1520 | 90 | 39 | 7.9 | 8.6 | 2.8 | .05 | .00 | .05 | .14 | .01 | .00 |

## 12043163 SOOES RIVER BELOW MILLER CREEK NEAR OZETTE, WA

LOCATION.--Lat 48°15'58, long 124°37'30", in NE¼NE¼ sec.21, T.32 N., R.15 W., Clallam County, Hydrologic Unit 17100101, on right bank at downstream side on Crown Zellerback logging road, 0.6 mi (1.0 km ) downstream from Miller Creek and 8 mi (13 km) north of Ozette.

DRAINAGE AREA.--32.0 mi$^2$ (82.9 km$^2$).

PERIOD OF RECORD.--March to September 1976.

GAGE.--Water-stage recorder. Elevation of gage is 70 ft (21.3 m), from topographic map.

REMARKS.--Records excellent except periods of no gage-height record Apr. 14-28, and July 19 to Aug. 9, which are good. No regulation or diversion above station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period March 20 to September, 2,190 ft$^3$/s (62.0 m$^3$/s) Mar. 24, gage height, 11.12 ft (3.389 m); minimum, 18 ft$^3$/s (0.51 m$^3$/s) Aug. 11, 12, 13, gage height, 5.87 ft (1.789 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | --- | 305 | 63 | 206 | 80 | 23 | 42 |
| 2 | | | | | | --- | 230 | 60 | 144 | 65 | 23 | 39 |
| 3 | | | | | | --- | 191 | 58 | 109 | 49 | 23 | 35 |
| 4 | | | | | | --- | 165 | 54 | 87 | 67 | 23 | 60 |
| 5 | | | | | | --- | 144 | 54 | 75 | 51 | 23 | 327 |
| 6 | | | | | | --- | 130 | 49 | 65 | 42 | 21 | 136 |
| 7 | | | | | | --- | 114 | 46 | 59 | 49 | 22 | 86 |
| 8 | | | | | | --- | 108 | 43 | 55 | 241 | 20 | 67 |
| 9 | | | | | | --- | 98 | 42 | 50 | 108 | 19 | 56 |
| 10 | | | | | | --- | 95 | 70 | 60 | 71 | 19 | 49 |
| 11 | | | | | | --- | 140 | 86 | 62 | 59 | 18 | 45 |
| 12 | | | | | | --- | 126 | 57 | 110 | 53 | 18 | 59 |
| 13 | | | | | | --- | 88 | 48 | 103 | 48 | 34 | 51 |
| 14 | | | | | | --- | 120 | 44 | 68 | 44 | 73 | 216 |
| 15 | | | | | | --- | 330 | 40 | 294 | 40 | 42 | 114 |
| 16 | | | | | | --- | 170 | 38 | 373 | 36 | 59 | 75 |
| 17 | | | | | | --- | 140 | 57 | 166 | 34 | 56 | 62 |
| 18 | | | | | | --- | 120 | 48 | 113 | 32 | 36 | 54 |
| 19 | | | | | | --- | 115 | 40 | 90 | 31 | 78 | 48 |
| 20 | | | | | | 594 | 230 | 36 | 77 | 30 | 297 | 42 |
| 21 | | | | | | 351 | 170 | 35 | 67 | 30 | 92 | 38 |
| 22 | | | | | | 534 | 140 | 32 | 65 | 29 | 60 | 38 |
| 23 | | | | | | 533 | 110 | 31 | 62 | 28 | 49 | 37 |
| 24 | | | | | | 1500 | 180 | 42 | 62 | 26 | 60 | 34 |
| 25 | | | | | | 572 | 140 | 60 | 55 | 26 | 49 | 31 |
| 26 | | | | | | 752 | 120 | 278 | 48 | 25 | 53 | 29 |
| 27 | | | | | | 568 | 94 | 207 | 44 | 24 | 69 | 28 |
| 28 | | | | | | 474 | 82 | 121 | 41 | 24 | 145 | 27 |
| 29 | | | | | | 327 | 74 | 114 | 39 | 26 | 76 | 26 |
| 30 | | | | | | 496 | 68 | 203 | 37 | 25 | 56 | 26 |
| 31 | | | | | | 570 | --- | 222 | --- | 24 | 48 | --- |
| TOTAL | | | | | | --- | 4337 | 2378 | 2886 | 1517 | 1684 | 1977 |
| MEAN | | | | | | --- | 145 | 76.7 | 96.2 | 48.9 | 54.3 | 65.9 |
| MAX | | | | | | --- | 330 | 278 | 373 | 241 | 297 | 327 |
| MIN | | | | | | --- | 68 | 31 | 37 | 24 | 18 | 26 |
| CFSM | | | | | | --- | 4.53 | 2.40 | 3.01 | 1.53 | 1.70 | 2.06 |
| IN. | | | | | | --- | 5.04 | 2.76 | 3.35 | 1.76 | 1.96 | 2.30 |
| AC-FT | | | | | | --- | 8600 | 4720 | 5720 | 3010 | 3340 | 3920 |

## 12043163 SOOES RIVER BELOW MILLER CREEK NEAR OZETTE, WA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April to September 1976.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| APR 20... | 1020 | *180 | 41 | 6.5 | 7.0 | 7 | 12.0 | 43 | 7 | 15 | 3 |
| JUN 02... | 1107 | 144 | 53 | 7.2 | 9.2 | 2 | 11.2 | -- | -- | -- | -- |
| AUG 25... | 1525 | 48 | 75 | 7.3 | 15.3 | -- | 9.7 | 670 | 92 | 25 | 1 |

* Mean daily discharge.

| DATE | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | CARBONATE (CO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | TOTAL NITRATE (N) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| APR 20... | 4.0 | 1.3 | 3.8 | .5 | 15 | -- | 12 | 3.1 | 5.1 | .01 |
| JUN 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 25... | 6.7 | 2.0 | 4.9 | .5 | 29 | 0 | 24 | 5.8 | 5.3 | .01 |

| DATE | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) | DISSOLVED CHROMIUM (CR) (UG/L) | DISSOLVED COPPER (CU) (UG/L) | DISSOLVED LEAD (PB) (UG/L) | TOTAL MERCURY (HG) (UG/L) | DISSOLVED ZINC (ZN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| APR 20... | .01 | .12 | .26 | .03 | .01 | -- | -- | -- | -- | -- |
| JUN 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 25... | .00 | .04 | .19 | .01 | .00 | 0 | 1 | 6 | .0 | 0 |

## 12043173 WAATCH RIVER BELOW EDUCKET CREEK AT NEAH BAY, WA

LOCATION.--Lat 48°21'25", long 124°37'36", in NW¼SE¼ sec.15, T.33 N., R.15 W., Clallam County, Hydrologic Unit 17100101, Makah Indian Reservation, on left bank at Neah Bay pumping plant, 80 ft (24 m) downstream from Educket Creek, and 0.7 mi (1.1 km) south of Neah Bay.

DRAINAGE AREA.--9.96 m$^{2}$ (25.80 km$^{2}$).

PERIOD OF RECORD.--May to September 1976.

GAGE.--Water-stage recorder. Altitude of gage is 20 ft (6 m), from topographic map.

REMARKS.--Records good. Makah Water Utility diverts approximately 21 acre-ft (25,900 m$^{3}$/yr) annually at the gage, for municipal use. No regulation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period May to September, 288 ft$^{3}$/s (8.16 m$^{3}$/s) June 15, gage height, 4.13 ft (1.259 m); minimum, 1.7 ft$^{3}$/s (0.048 m$^{3}$/s) Aug. 12, gage height, 0.84 ft (0.256 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | 12 | 53 | 10 | 3.0 | 11 |
| 2 | | | | | | | | 11 | 37 | 8.6 | 2.9 | 9.7 |
| 3 | | | | | | | | 10 | 27 | 9.6 | 2.9 | 8.5 |
| 4 | | | | | | | | 9.6 | 22 | 11 | 2.9 | 40 |
| 5 | | | | | | | | 9.4 | 17 | 9.4 | 2.8 | 127 |
| 6 | | | | | | | | 9.2 | 14 | 8.0 | 2.7 | 50 |
| 7 | | | | | | | | 8.6 | 12 | 9.8 | 2.4 | 31 |
| 8 | | | | | | | | 8.0 | 11 | 59 | 2.4 | 22 |
| 9 | | | | | | | | 7.7 | 9.7 | 21 | 2.4 | 17 |
| 10 | | | | | | | | 13 | 12 | 14 | 2.3 | 13 |
| 11 | | | | | | | | 13 | 13 | 11 | 2.1 | 12 |
| 12 | | | | | | | | 9.2 | 24 | 9.8 | 2.3 | 14 |
| 13 | | | | | | | | 8.4 | 17 | 9.0 | 14 | 13 |
| 14 | | | | | | | | 7.9 | 13 | 8.2 | 16 | 42 |
| 15 | | | | | | | | 7.3 | 122 | 7.6 | 7.0 | 21 |
| 16 | | | | | | | | 7.1 | 123 | 7.0 | 19 | 15 |
| 17 | | | | | | | | 11 | 55 | 6.4 | 13 | 13 |
| 18 | | | | | | | | 8.6 | 36 | 6.0 | 7.5 | 11 |
| 19 | | | | | | | | 7.7 | 26 | 5.6 | 31 | 9.9 |
| 20 | | | | | | | | 6.8 | 20 | 5.4 | 69 | 8.6 |
| 21 | | | | | | | | 6.3 | 16 | 5.2 | 24 | 8.1 |
| 22 | | | | | | | | 5.8 | 15 | 4.9 | 15 | 7.9 |
| 23 | | | | | | | | 5.4 | 13 | 4.6 | 12 | 7.5 |
| 24 | | | | | | | | 7.7 | 13 | 4.2 | 16 | 6.9 |
| 25 | | | | | | | | 12 | 11 | 4.1 | 13 | 6.4 |
| 26 | | | | | | | | 104 | 9.8 | 3.7 | 12 | 6.1 |
| 27 | | | | | | | | 72 | 9.6 | 3.4 | 17 | 5.8 |
| 28 | | | | | | | | 49 | 9.0 | 3.3 | 46 | 5.3 |
| 29 | | | | | | | | 51 | 8.8 | 3.5 | 22 | 5.3 |
| 30 | | | | | | | | 69 | 9.4 | 3.3 | 15 | 5.2 |
| 31 | | | | | | | | 71 | --- | 3.2 | 13 | --- |
| TOTAL | | | | | | | | 638.7 | 778.3 | 279.8 | 412.6 | 553.3 |
| MEAN | | | | | | | | 20.6 | 25.9 | 9.03 | 13.3 | 18.4 |
| MAX | | | | | | | | 104 | 123 | 59 | 69 | 127 |
| MIN | | | | | | | | 5.4 | 8.8 | 3.2 | 2.1 | 5.2 |
| CFSM | | | | | | | | 2.07 | 2.60 | .91 | 1.34 | 1.85 |
| IN. | | | | | | | | 2.39 | 2.91 | 1.04 | 1.54 | 2.07 |
| AC-FT | | | | | | | | 1270 | 1540 | 555 | 818 | 1100 |

## 12043173 WAATCH RIVER BELOW EDUCKET CREEK AT NEAH BAY, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--April to September 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| APR | | | | | | | | | |
| 20... | 0830 | -- | 37 | 6.6 | 5.5 | 4 | 11.9 | 4 | 1 |
| JUN | | | | | | | | | |
| 02... | 1335 | 37 | 47 | 6.9 | 7.2 | 1 | 11.8 | -- | -- |
| 03... | 0640 | 46 | -- | -- | -- | -- | -- | 280 | 24 |
| AUG | | | | | | | | | |
| 25... | 1030 | 12 | 60 | 7.1 | 11.1 | -- | 10.0 | -- | -- |
| 26... | 0740 | 12 | -- | -- | -- | -- | -- | 560 | B25 |

| DATE | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | CARBONATE (CO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| APR | | | | | | | | | |
| 20... | 19 | 9 | 5.7 | 1.1 | 3.8 | .4 | 12 | -- | 10 |
| JUN | | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 25... | 21 | 4 | 5.3 | 1.8 | 5.1 | .4 | 20 | 0 | 16 |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| APR | | | | | | | | |
| 20... | 4.3 | 6.6 | .15 | .01 | .07 | .17 | .02 | .00 |
| JUN | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | |
| 25... | 6.3 | 5.9 | .15 | .00 | .03 | .11 | .01 | .01 |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- |

## 12043190 SAIL RIVER NEAR NEAH BAY, WA

LOCATION--Lat 48°21'27", long 124°33'37", in NW¼SE¼ sec.18, T.33 N., R.14 W., Clallam County, Hydrologic Unit 17100101, Makah Indian Reservation, on right bank 100 ft (30 m) upstream from State Highway 112, 0.2 mi (0.3 km) upstream from mouth, and 3.0 mi (4.8 km) east of Neah Bay.

DRAINAGE AREA.--5.42 mi² (14.04 km²).

PERIOD OF RECORD.--June to September 1976.

GAGE.--Water-stage recorder. Altitude of gage is 20 ft (6 m), from topographic map.

REMARKS.--Records good. No regulation or diversion above station.

EXTREME FOR CURRENT YEAR.--Maximum discharge during period June to September, 63 ft³/s (1.78 m³/s) Sept. 4, gage height, 3.68 ft (1.122 m); minimum discharge during period June to September, 1.4 ft³/s (0.040 m³/s) Aug. 10, 11, 12, 13, gage height, 3.00 ft (0.914 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | 21 | 5.6 | 1.9 | 5.3 |
| 2 | | | | | | | | | 17 | 4.4 | 1.8 | 4.8 |
| 3 | | | | | | | | | 14 | 4.5 | 1.8 | 4.3 |
| 4 | | | | | | | | | 12 | 5.9 | 1.8 | 14 |
| 5 | | | | | | | | | 10 | 4.2 | 1.8 | 37 |
| 6 | | | | | | | | | 8.5 | 3.8 | 1.7 | 19 |
| 7 | | | | | | | | | 7.5 | 4.9 | 1.7 | 13 |
| 8 | | | | | | | | | 6.5 | 21 | 1.5 | 10 |
| 9 | | | | | | | | | 6.0 | 11 | 1.5 | 7.8 |
| 10 | | | | | | | | | 6.5 | 9.0 | 1.5 | 6.2 |
| 11 | | | | | | | | | 7.0 | 7.5 | 1.4 | 5.4 |
| 12 | | | | | | | | | 10 | 6.5 | 1.4 | 5.4 |
| 13 | | | | | | | | | 8.5 | 5.7 | 4.4 | 5.4 |
| 14 | | | | | | | † 11 | | 7.0 | 5.2 | 4.2 | 12 |
| 15 | | | | | | | | | 35 | 4.6 | 2.3 | 7.3 |
| 16 | | | | | | | | | 40 | 4.3 | 4.1 | 5.8 |
| 17 | | | | | | | | | 32 | 4.0 | 3.1 | 5.1 |
| 18 | | | | | | | | | 24 | 3.8 | 2.3 | 4.7 |
| 19 | | | | | | | | | 19 | 3.5 | 9.1 | 4.1 |
| 20 | | | | | | | | | 15 | 3.5 | 15 | 3.8 |
| 21 | | | | | | | | | 12 | 3.3 | 7.7 | 3.5 |
| 22 | | | | | | | | | 10 | 3.1 | 5.6 | 3.8 |
| 23 | | | | | | | | | 9.5 | 2.9 | 5.2 | 3.5 |
| 24 | | | | | | | | | 8.7 | 2.6 | 6.7 | 3.3 |
| 25 | | | | | | | | | 7.4 | 2.6 | 5.2 | 3.1 |
| 26 | | | | | | | | | 6.4 | 2.3 | 4.8 | 2.8 |
| 27 | | | | | | | | | 5.6 | 2.2 | 7.1 | 2.6 |
| 28 | | | | | | | | | 5.0 | 2.1 | 12 | 2.6 |
| 29 | | | | | | | | | 4.6 | 2.2 | 8.8 | 2.6 |
| 30 | | | | | | | | | 4.7 | 2.1 | 7.1 | 2.6 |
| 31 | | | | | | | | | --- | 2.0 | 5.9 | --- |
| TOTAL | | | | --- | | | | | 380.4 | 150.3 | 140.4 | 210.8 |
| MEAN | | | | --- | | | | | 12.7 | 4.85 | 4.53 | 7.03 |
| MAX | | | | --- | | | | | 40 | 21 | 15 | 37 |
| MIN | | | | --- | | | | | 4.6 | 2.0 | 1.4 | 2.6 |
| CFSM | | | | --- | | | | | 2.34 | .89 | .84 | 1.30 |
| IN. | | | | --- | | | | | 2.61 | 1.03 | .96 | 1.45 |
| AC-FT | | | | --- | | | | | 755 | 298 | 278 | 418 |

† Result of discharge measurement.

## 12043190 SAIL RIVER NEAR NEAH BAY, WA--Continued

PERIOD OF RECORD.--April to September 1976.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| APR | | | | | | | | | |
| 19... | 1450 | -- | 42 | 6.6 | 7.4 | 6 | 12.0 | 8 | <1 |
| JUN | | | | | | | | | |
| 02... | 1700 | *21 | 45 | 6.6 | 8.9 | 5 | 11.6 | -- | -- |
| 03... | 0711 | *15 | -- | -- | -- | -- | -- | 220 | 79 |
| AUG | | | | | | | | | |
| 25... | 0745 | 5.0 | 72 | 7.6 | 10.8 | -- | -- | -- | -- |
| 26... | 0720 | 5.0 | -- | -- | -- | -- | -- | E800 | 8 |

* Mean daily discharge.
E Estimated.

| DATE | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | CARBONATE (CO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| APR | | | | | | | | | |
| 19... | 16 | 4 | 5.1 | .9 | 4.2 | .4 | 15 | -- | 12 |
| JUN | | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 25... | 20 | 3 | 5.8 | 1.4 | 6.1 | .4 | 21 | 0 | 17 |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| APR | | | | | | | | |
| 19... | 4.0 | 4.0 | .07 | .01 | .06 | .12 | .02 | .00 |
| JUN | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | |
| 25... | 8.7 | 4.5 | .26 | .00 | .03 | .20 | .01 | .01 |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- |

## 12045000 LAKE MILLS AT GLINES CANYON, NEAR PORT ANGELES, WA

LOCATION.--Lat 48°00'08", long 123°35'55", in SW¼SE¼ sec.17, T.29 N., R.7 W., Clallam County, Hydrologic Unit 17110020, Olympic National Park, at Glines Canyon Dam on Elwha River 2 mi (3.2 km) upstream from Griff Creek, 4.1 mi (6.6 km) south of Elwha, and 11 mi (17.7 km) southwest of Port Angeles.

DRAINAGE AREA.--245 $mi^2$ (635 $km^2$).

PERIOD OF RECORD.--April 1927 to current year. Prior to October 1950 monthly change in contents, published in WSP 1316.

GAGE.--Nonrecording gage. Datum of gage is 19.67 ft (6.00 m) below mean sea level.

REMARKS.--Reservoir is formed by concrete dam, completed in 1927; storage began Apr. 1, 1927. Total capacity, 37,790 acre-ft (46.6 $hm^3$) at gage height 608 ft (185.3 m), top of gates. Dead storage below gage height 579 ft (176.5 m), 26,000 acre-ft (32.1 $hm^3$). Figures given herein represent total contents. Water is used for power by Crown Zellerbach Corp.

COOPERATION.--Gage height record furnished by Crown Zellerbach Corp.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents observed, 39,940 acre-ft (49.2 $hm^3$) Dec. 22, 1936, gage height, 613.0 ft (186.84 m); minimum observed since reservoir first filled in May 1927, 24,290 acre-ft (29.9 $hm^3$) Nov. 14, 1929, gage height, 574.4 ft (175.08 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 39,252 acre-ft (48.4 $hm^3$) June 16, gage height, 611.4 ft (186.35 m); minimum observed, 31,390 acre-ft (38.7 $hm^3$) May 1, gage height, 592.5 ft (180.59 m).

MONTHEND GAGE HEIGHTS AND CONTENTS AT 2400 WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Gage height (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 608.3 | 37,920 | - |
| Oct. 31 | 605.6 | 36,782 | -1,138 |
| Nov. 30 | 610.2 | 38,736 | +1,954 |
| Dec. 31 | 608.9 | 38,177 | -559 |
| CAL YR 1975 | - | - | +597 |
| Jan. 31 | 609.6 | 38,478 | +301 |
| Feb. 29 | 606.4 | 37,118 | -1,360 |
| Mar. 31 | 602.4 | 35,438 | -1,680 |
| Apr. 30 | 593.3 | 31,710 | -3,728 |
| May 31 | 609.6 | 38,478 | +6,768 |
| June 30 | 610.4 | 38,822 | +344 |
| July 31 | 610.5 | 38,865 | +43 |
| Aug. 31 | 610.1 | 38,693 | -172 |
| Sept. 30 | 609.9 | 38,607 | -86 |
| WTR YR 1976 | - | - | +687 |

### 12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 48°03'18", long 123°34'55", in NE¼NW¼ sec.33, T.30 N., R.7 W., Clallam County, Hydrologic Unit 17110020, Olympic National Forest, on right bank 300 ft (91 m) upstream from site of McDonald Bridge (now removed), 0.7 mi (1.1 km) upstream from Little River, 8 mi (12.9 km) southwest of Port Angeles, and at mile 8.6 (13.8 km).

DRAINAGE AREA.--269 mi² (697 km²).

#### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-October 1897 to December 1901, October 1918 to current year. Published as "at McDonald" 1897-1901.

REVISED RECORDS.--WSP 1246: Drainage area. WSP 1286: 1898, 1899(M), 1900-1902, 1919, 1920-31(M) 1932, 1933(M). WSP 1566: 1957(m).

GAGE.--Water-stage recorder. Datum of gage is 200.00 ft (60.960 m) above mean sea level. Oct. 1, 1897, to Dec. 31, 1901, nonrecording gage at McDonald Bridge at different datum. Dec. 9, 1918, to May 1, 1936, water-stage recorder under McDonald Bridge at datum 7.4 ft (2.26 m) higher.

REMARKS.--Records good. Water is diverted through Glines Canyon powerhouse and returned to river above gage. Flow partly regulated by Lake Mills 4.9 mi (7.9 km) upstream (see sta 12045000).

AVERAGE DISCHARGE.--62 years (water years 1898-1901, 1919-1976), 1,521 ft³/s (43.07 m³/s), 76.79 in/yr (1,950 mm/yr), 1,102,000 acre-ft/yr (1,359 hm³/yr), adjusted for storage since April 1927.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,600 ft³/s (1,180 m³/s) Nov. 18, 1897, gage height, 14.5 ft (4.42 m), from graph based on gage readings, site and datum then in use, from rating curve extended above 3,300 ft³/s (93.5 m³/s) on basis of two determinations of flow over dam at discharge 26,700 ft³/s (756 m³/s) and 30,100 ft³/s (852 m³/s), referred to 1897 datum; minimum daily, 10 ft/s (0.28 m³/s) Oct. 3, 1938.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,500 ft³/s (552 m³/s) Dec. 4, gage height, 20.17 ft (6.148 m); minimum, 250 ft³/s (7.08 m³/s) Feb. 22, gage height, 8.75 ft (2.667 m); minimum daily, 451 ft³/s (12.8 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 487 | 3150 | 3630 | 2410 | 1750 | 1110 | 976 | 2100 | 1730 | 2320 | 1570 | 896 |
| 2 | 451 | 3200 | 10200 | 2240 | 1790 | 758 | 968 | 3090 | 1600 | 2140 | 1520 | 848 |
| 3 | 714 | 4690 | 14200 | 2220 | 1750 | 1020 | 960 | 2320 | 1670 | 2220 | 1610 | 854 |
| 4 | 1380 | 5400 | 12200 | 2620 | 1590 | 1040 | 960 | 1910 | 1660 | 2550 | 1640 | 848 |
| 5 | 2310 | 4670 | 6700 | 2200 | 1400 | 842 | 936 | 1720 | 1570 | 2730 | 1580 | 884 |
| 6 | 1500 | 4120 | 5530 | 1680 | 1440 | 794 | 960 | 1700 | 1600 | 3060 | 1580 | 1010 |
| 7 | 1210 | 3660 | 4330 | 1870 | 1380 | 782 | 1040 | 1750 | 1620 | 3180 | 1630 | 860 |
| 8 | 1000 | 3260 | 3980 | 2120 | 1350 | 782 | 1080 | 1870 | 1790 | 3690 | 1580 | 770 |
| 9 | 1400 | 2490 | 4150 | 1680 | 1330 | 830 | 1180 | 2660 | 1920 | 3090 | 1490 | 722 |
| 10 | 1600 | 1990 | 3010 | 1800 | 1220 | 806 | 1220 | 3880 | 1950 | 2480 | 1460 | 644 |
| 11 | 1240 | 1960 | 2470 | 1990 | 2050 | 890 | 1380 | 3410 | 2040 | 2420 | 1460 | 614 |
| 12 | 1140 | 1990 | 2600 | 1830 | 1810 | 830 | 1560 | 2760 | 2080 | 2410 | 1450 | 614 |
| 13 | 970 | 3400 | 2600 | 1600 | 1300 | 728 | 1420 | 2430 | 1990 | 2320 | 1420 | 656 |
| 14 | 939 | 8690 | 1910 | 2840 | 1430 | 776 | 1300 | 2920 | 1900 | 2260 | 1380 | 722 |
| 15 | 1350 | 10600 | 1900 | 6640 | 1440 | 770 | 1210 | 2660 | 1950 | 2250 | 1290 | 728 |
| 16 | 1960 | 5240 | 1850 | 6750 | 1660 | 758 | 1200 | 2610 | 3110 | 2550 | 1300 | 680 |
| 17 | 9670 | 3800 | 1640 | 4520 | 1790 | 800 | 1200 | 2640 | 3250 | 2660 | 1240 | 680 |
| 18 | 4670 | 2680 | 1570 | 3670 | 1830 | 976 | 1140 | 2370 | 3400 | 2500 | 1140 | 680 |
| 19 | 4370 | 2800 | 1550 | 2490 | 1570 | 1050 | 1090 | 2100 | 3550 | 2380 | 1090 | 626 |
| 20 | 3130 | 2190 | 1490 | 1890 | 1390 | 1110 | 1050 | 1990 | 3300 | 2410 | 1180 | 656 |
| 21 | 2530 | 2110 | 1400 | 2420 | 1260 | 1100 | 992 | 1940 | 2850 | 2280 | 1200 | 698 |
| 22 | 1920 | 2300 | 1330 | 1940 | 1320 | 1100 | 968 | 2050 | 2640 | 1880 | 1120 | 710 |
| 23 | 1490 | 3360 | 1480 | 2070 | 1470 | 1090 | 936 | 2010 | 2560 | 1890 | 1020 | 734 |
| 24 | 1650 | 3750 | 2500 | 1900 | 1300 | 1230 | 896 | 2080 | 2540 | 2160 | 984 | 686 |
| 25 | 2690 | 3130 | 2350 | 1780 | 1290 | 1260 | 952 | 2060 | 2170 | 2200 | 1000 | 620 |
| 26 | 1530 | 3710 | 8800 | 2440 | 1290 | 1260 | 920 | 2020 | 2080 | 2110 | 920 | 620 |
| 27 | 1790 | 2580 | 5130 | 5400 | 1260 | 1260 | 884 | 2670 | 2120 | 1890 | 944 | 662 |
| 28 | 1710 | 1910 | 3360 | 2660 | 1280 | 1240 | 860 | 2620 | 2240 | 1760 | 960 | 602 |
| 29 | 4230 | 2080 | 3900 | 2160 | 1200 | 1140 | 1220 | 2120 | 2590 | 1830 | 1050 | 644 |
| 30 | 4510 | 2280 | 3890 | 2170 | --- | 1010 | 1900 | 1830 | 2560 | 1760 | 1000 | 650 |
| 31 | 2940 | --- | 2770 | 1950 | --- | 984 | --- | 1710 | --- | 1700 | 960 | --- |
| TOTAL | 68481 | 107190 | 124420 | 81950 | 42940 | 30126 | 33358 | 72000 | 68030 | 73080 | 39768 | 21618 |
| MEAN | 2209 | 3573 | 4014 | 2644 | 1481 | 972 | 1112 | 2323 | 2268 | 2357 | 1283 | 721 |
| MAX | 9670 | 10600 | 14200 | 6750 | 2050 | 1260 | 1900 | 3880 | 3550 | 3690 | 1640 | 1010 |
| MIN | 451 | 1910 | 1330 | 1600 | 1200 | 728 | 860 | 1700 | 1570 | 1700 | 920 | 602 |
| AC-FT | 135800 | 212600 | 246800 | 162500 | 85170 | 59750 | 66170 | 142800 | 134900 | 145000 | 78880 | 42880 |
| † | -1,138 | +1,954 | -559 | +301 | -1,360 | -1,680 | -3,728 | +6,768 | +344 | +43 | -172 | -86 |
| MEAN‡ | 2,190 | 3,607 | 4,003 | 2,647 | 1,457 | 944 | 1,050 | 2,432 | 2,273 | 2,358 | 1,280 | 719 |
| CFSM‡ | 8.14 | 13.4 | 14.9 | 9.84 | 5.42 | 3.51 | 3.90 | 9.04 | 8.45 | 8.77 | 4.76 | 2.67 |
| IN‡ | 9.39 | 14.96 | 17.16 | 11.35 | 5.84 | 4.05 | 4.35 | 10.43 | 9.42 | 10.11 | 5.49 | 2.98 |
| AC-FT‡ | 134,700 | 214,600 | 246,200 | 162,800 | 83,810 | 58,070 | 62,440 | 149,600 | 135,200 | 145,000 | 78,710 | 42,790 |

CAL YR 1975: TOTAL 698,590 MEAN 1,914 MAX 14,200 MIN 451 AC-FT 1,386,000
DO.....: MEAN‡ 1,915 CFSM‡ 7.12 IN.‡ 96.67 AC-FT‡ 1,387,000
WTR YR 1976: TOTAL 762,961 MEAN 2,085 MAX 14,200 MIN 451 AC-FT 1,513,000
DO.....: MEAN‡ 2,086 CFSM‡ 7.76 IN.‡ 105.53 AC-FT‡ 1,514,000

† Change in contents in acre-feet, in Lake Mills.
‡ Adjusted for change in contents in Lake Mills.

## 12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-60, 1962-70, 1972 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: April to September 1976.

INSTRUMENTATION.--Temperature recorder since April 1976.

REMARKS.--Temperature recorder clock stopped May 1-18 (no range in stage available). Prior to 1962 published as "Elwha River near Port Angeles". 1972 to 1974 published as "12045560 Elwha River below Little River near Port Angeles".

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: During period Apr. 6 to Sept. 30, maximum recorded, 12.0°C Sept. 9, 10, 19-21, 24-26, 28, minimum, 4.5°C Apr. 9, 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | STREPTOCOCCI (COLONIES PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 16... | 1010 | 1240 | 82 | 7.7 | 9.4 | 2 | 95 | <1 | <1 | 37 | 5 | 13 |
| NOV | | | | | | | | | | | | |
| 21... | 0830 | 2130 | 76 | 7.2 | 4.0 | 25 | 27 | <1 | 27 | 35 | 4 | 12 |
| DEC | | | | | | | | | | | | |
| 22... | 1300 | 1340 | 82 | 7.2 | 4.4 | 10 | 11 | 1 | <1 | 40 | 7 | 14 |
| JAN | | | | | | | | | | | | |
| 21... | 0930 | 2100 | 79 | 7.1 | 4.0 | 10 | 4 | 3 | <1 | 37 | 5 | 12 |
| FEB | | | | | | | | | | | | |
| 19... | 1200 | 1530 | 97 | 7.0 | 4.4 | 3 | 7 | <1 | <1 | 45 | 6 | 15 |
| MAR | | | | | | | | | | | | |
| 22... | 1045 | 1100 | 100 | 7.1 | 4.6 | 2 | 2 | 2 | <1 | 52 | 6 | 16 |
| APR | | | | | | | | | | | | |
| 21... | 0830 | 1010 | 87 | 7.0 | 5.7 | 1 | 14 | 3 | <1 | 46 | 3 | 15 |
| MAY | | | | | | | | | | | | |
| 19... | 1230 | 2080 | 69 | 7.1 | 7.2 | 2 | 5 | <1 | <1 | 34 | 5 | 12 |
| JUN | | | | | | | | | | | | |
| 30... | 1230 | 2590 | 62 | 7.3 | 8.9 | 1 | 10 | 1 | <1 | 29 | 2 | 10 |
| JUL | | | | | | | | | | | | |
| 22... | 0930 | 1730 | 63 | 7.1 | 9.4 | 1 | 4 | <1 | 3 | 30 | 5 | 11 |
| AUG | | | | | | | | | | | | |
| 25... | 1245 | 1000 | 62 | 7.2 | 10.8 | 1 | 16 | 1 | 15 | 37 | 6 | 13 |
| SEP | | | | | | | | | | | | |
| 27... | 1230 | 698 | 65 | 7.2 | 11.6 | 2 | 1 | <1 | 4 | 40 | 6 | 14 |

| DATE | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED FLUORIDE (F) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 16... | 1.0 | 2.1 | .2 | 39 | 32 | 1.2 | 7.6 | 1.9 | .1 | 4.7 | 52 | 50 |
| NOV | | | | | | | | | | | | |
| 21... | 1.2 | 1.8 | .2 | 38 | 31 | 3.8 | 5.2 | 1.4 | .1 | 5.9 | 56 | 47 |
| DEC | | | | | | | | | | | | |
| 22... | 1.3 | 2.1 | .5 | 41 | 34 | 4.1 | 7.2 | 1.4 | .1 | 5.9 | 68 | 53 |
| JAN | | | | | | | | | | | | |
| 21... | 1.8 | 2.0 | .4 | 40 | 33 | 5.1 | 6.2 | 1.3 | .1 | 5.4 | 46 | 49 |
| FEB | | | | | | | | | | | | |
| 19... | 1.8 | 2.1 | .3 | 47 | 39 | 7.5 | 8.0 | 1.1 | .1 | 6.1 | 54 | 58 |
| MAR | | | | | | | | | | | | |
| 22... | 3.0 | 3.0 | .3 | 56 | 46 | 7.1 | 10 | 1.3 | .1 | 6.6 | 65 | 68 |
| APR | | | | | | | | | | | | |
| 21... | 2.1 | 2.7 | .2 | 52 | 43 | 8.3 | 11 | .8 | .1 | 6.3 | 66 | 64 |
| MAY | | | | | | | | | | | | |
| 19... | .9 | 1.4 | .1 | 35 | 29 | 4.4 | 6.9 | .9 | .1 | 4.9 | 50 | 44 |
| JUN | | | | | | | | | | | | |
| 30... | .9 | 1.3 | .1 | 33 | 27 | 2.6 | 7.0 | 1.0 | .1 | 4.3 | 45 | 41 |
| JUL | | | | | | | | | | | | |
| 22... | .7 | 1.3 | .1 | 31 | 25 | 3.9 | 6.0 | .8 | .2 | 4.3 | 30 | 40 |
| AUG | | | | | | | | | | | | |
| 25... | 1.0 | 1.8 | .1 | 37 | 30 | 3.7 | 7.5 | 1.1 | .1 | 4.4 | 46 | 47 |
| SEP | | | | | | | | | | | | |
| 27... | 1.1 | 1.8 | .1 | 41 | 34 | 4.1 | 8.3 | 2.2 | .2 | 4.6 | 56 | 53 |

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TOTAL NON-FILT-RABLE RESIDUE (MG/L) | SUS-PENDED SOLIDS (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | SUS-PENDED SEDI-MENT (MG/L) | SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY) | SUS. SED. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 15... | -- | -- | .02 | .00 | .02 | .04 | .12 | .01 | .00 | 3 | 10 | 99 |
| NOV 21... | -- | -- | .02 | .01 | .03 | .13 | .13 | .05 | .00 | 35 | 201 | 100 |
| DEC 22... | -- | -- | .00 | .01 | .01 | .10 | .13 | .03 | .00 | 13 | 47 | 100 |
| JAN 21... | -- | -- | .04 | .00 | .04 | .10 | .12 | .03 | .02 | 19 | 108 | 98 |
| FEB 19... | -- | -- | .02 | .00 | .02 | .04 | .06 | .01 | .01 | 5 | 21 | 95 |
| MAR 22... | -- | -- | .01 | .00 | .01 | .02 | .08 | .01 | .01 | 3 | 8.9 | 68 |
| APR 21... | -- | -- | .00 | .00 | .00 | .04 | .10 | .01 | .00 | 1 | 2.7 | 80 |
| MAY 19... | -- | -- | .02 | .00 | .02 | .04 | .09 | .02 | .00 | 20 | 112 | 78 |
| JUN 30... | -- | -- | .00 | .00 | .00 | .02 | .04 | .01 | .00 | 3 | 21 | 88 |
| JUL 22... | -- | 0 | .00 | .00 | .00 | .02 | .02 | .01 | .00 | 2 | 9.3 | 80 |
| AUG 25... | 0 | -- | .00 | .00 | .00 | .02 | .02 | .01 | .00 | 1 | 2.7 | 82 |
| SEP 27... | 5 | -- | .00 | .00 | .00 | .01 | .02 | .01 | .00 | 1 | 1.9 | 64 |

| DATE | TIME | TOTAL ARSENIC (AS) (UG/L) | DIS-SOLVED ARSENIC (AS) (UG/L) | TOTAL CAD-MIUM (CD) (UG/L) | DIS-SOLVED CAD-MIUM (CD) (UG/L) | TOTAL CHRO-MIUM (CR) (UG/L) | DIS-SOLVED CHRO-MIUM (CR) (UG/L) | TOTAL COBALT (CO) (UG/L) | DIS-SOLVED COBALT (CO) (UG/L) | TOTAL COPPER (CU) (UG/L) | DIS-SOLVED COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 16... | 1010 | 1 | 1 | 0 | 0 | 50 | 0 | 60 | 3 | 0 | 2 | 90 |
| JAN 21... | 0930 | 0 | 0 | <10 | 0 | 0 | 0 | <50 | 0 | 20 | 2 | 1100 |
| APR 21... | 0830 | 1 | 0 | <10 | 1 | 0 | 0 | <50 | 1 | <10 | 2 | 60 |
| JUL 22... | 0930 | 1 | 1 | <10 | 2 | 0 | 10 | <50 | 0 | <10 | 2 | 170 |

| DATE | DIS-SOLVED IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | DIS-SOLVED LEAD (PB) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | DIS-SOLVED MAN-GANESE (MN) (UG/L) | TOTAL MERCURY (HG) (UG/L) | DIS-SOLVED MERCURY (HG) (UG/L) | TOTAL SELE-NIUM (SE) (UG/L) | DIS-SOLVED SELE-NIUM (SE) (UG/L) | TOTAL ZINC (ZN) (UG/L) | DIS-SOLVED ZINC (ZN) (UG/L) | TOTAL ORGANIC CARBON (C) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 16... | 30 | <100 | 3 | 20 | 10 | .0 | .0 | 0 | 0 | 20 | 10 | -- |
| JAN 21... | 60 | <100 | 3 | 20 | 0 | .1 | .0 | 0 | 0 | 20 | 10 | .8 |
| APR 21... | 30 | <100 | 10 | 20 | 10 | .1 | .1 | 0 | 0 | 0 | 0 | 1.4 |
| JUL 22... | 10 | <100 | 1 | 10 | 0 | .0 | .0 | 0 | 0 | 0 | 10 | 1.5 |

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | TOTAL ALDRIN (UG/L) | TOTAL ATRA-ZINE (UG/L) | TOTAL CHLOR-DANE (UG/L) | TOTAL DDD (UG/L) | TOTAL DDE (UG/L) | TOTAL DDT (UG/L) | TOTAL DI-AZINON (UG/L) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| 22... | 1300 | ND | ND | ND | ND | ND | ND | ND |
| MAR | | | | | | | | |
| 22... | 1045 | ND | ND | ND | ND | ND | ND | ND |
| MAY | | | | | | | | |
| 19... | 1230 | ND | ND | ND | ND | ND | ND | ND |
| AUG | | | | | | | | |
| 25... | 1245 | ND | ND | ND | ND | ND | ND | ND |

| DATE | TOTAL DI-ELDRIN (UG/L) | TOTAL ENDRIN (UG/L) | TOTAL ETHION (UG/L) | TOTAL HEPTA-CHLOR (UG/L) | TOTAL HEPTA-CHLOR EPOXIDE (UG/L) | TOTAL LINDANE (UG/L) | TOTAL MALA-THION (UG/L) | TOTAL METH-OXY-CHLOR (UG/L) | TOTAL METHYL PARA-THION (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | |
| 22... | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| MAR | | | | | | | | | |
| 22... | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| MAY | | | | | | | | | |
| 19... | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| AUG | | | | | | | | | |
| 25... | ND | ND | ND | ND | ND | ND | ND | ND | ND |

| DATE | TOTAL METHYL TRI-THION (UG/L) | TOTAL PARA-THION (UG/L) | SIMA-ZINE TOTAL( (UG/L) | TOTAL TOX-APHENE (UG/L) | TOTAL TRI-THION (UG/L) | TOTAL 2,4-D (UG/L) | TOTAL 2,4,5-T (UG/L) | TOTAL SILVEX (UG/L) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| 22... | ND | ND | -- | ND | ND | ND | ND | ND |
| MAR | | | | | | | | |
| 22... | ND | ND | -- | ND | ND | ND | ND | ND |
| MAY | | | | | | | | |
| 19... | ND | ND | -- | ND | ND | ND | ND | ND |
| AUG | | | | | | | | |
| 25... | ND | ND | ND | ND | ND | ND | ND | ND |

ND None detected.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | --- | --- | --- | --- | 8.0 | 6.0 | 9.0 | 7.0 | 10.5 | 10.0 | 11.0 | 9.5 |
| 2 | --- | --- | --- | --- | 8.0 | 6.0 | 9.5 | 7.0 | 11.0 | 10.0 | 11.5 | 10.0 |
| 3 | --- | --- | --- | --- | 8.5 | 6.0 | 9.0 | 8.0 | 10.5 | 10.0 | 11.5 | 10.0 |
| 4 | --- | --- | --- | --- | 9.0 | 6.5 | 9.0 | 8.0 | 11.5 | 10.0 | 11.0 | 10.0 |
| 5 | --- | --- | --- | --- | 9.0 | 6.5 | 9.5 | 8.0 | 11.0 | 10.0 | 10.5 | 10.0 |
| 6 | 6.5 | --- | --- | --- | 9.0 | 7.0 | 9.5 | 8.5 | 11.5 | 10.0 | 11.0 | 10.0 |
| 7 | 6.0 | 5.0 | --- | --- | 9.0 | 8.0 | 9.0 | 8.5 | 11.0 | 10.0 | 11.5 | 10.0 |
| 8 | 6.0 | 5.0 | --- | --- | 9.5 | 8.0 | 9.5 | 8.5 | 11.5 | 10.0 | 11.5 | 10.0 |
| 9 | 6.5 | 4.5 | --- | --- | 9.0 | 8.0 | 9.0 | 8.0 | 11.5 | 10.0 | 12.0 | 10.0 |
| 10 | 7.0 | 5.0 | --- | --- | 8.5 | 8.0 | 9.5 | 8.0 | 11.5 | 10.0 | 12.0 | 10.0 |
| 11 | 6.0 | 5.0 | --- | --- | 8.5 | 8.0 | 9.5 | 8.0 | 11.5 | 10.0 | 11.0 | 10.0 |
| 12 | 6.0 | 5.0 | --- | --- | 9.0 | 8.0 | 9.0 | 8.0 | 11.5 | 10.0 | 11.0 | 10.0 |
| 13 | 7.0 | 5.0 | --- | --- | 9.0 | 7.0 | 9.5 | 8.0 | 10.5 | 10.5 | 11.0 | 9.5 |
| 14 | 5.5 | 5.0 | --- | --- | 9.5 | 7.0 | 10.0 | 8.5 | 11.5 | 10.5 | 11.5 | 10.0 |
| 15 | 6.0 | 5.0 | --- | --- | 9.0 | 8.0 | 10.0 | 8.5 | 10.5 | 10.0 | 11.5 | 10.0 |
| 16 | 6.5 | 5.0 | --- | --- | 9.0 | 8.0 | 10.0 | 9.0 | 10.5 | 10.0 | 11.5 | 10.0 |
| 17 | 5.5 | 5.0 | --- | --- | 9.5 | 8.0 | 10.0 | 9.0 | 11.0 | 9.5 | 11.0 | 10.0 |
| 18 | 6.0 | 5.0 | --- | --- | 9.5 | 8.0 | 10.0 | 9.0 | 11.0 | 9.5 | 11.5 | 10.0 |
| 19 | 6.0 | 5.0 | 8.0 | 6.5 | 9.5 | 8.0 | 10.0 | 9.0 | 10.0 | 10.0 | 12.0 | 10.0 |
| 20 | 6.5 | 5.0 | 8.0 | 6.5 | 9.5 | 8.0 | 10.5 | 9.0 | 11.0 | 9.5 | 12.0 | 10.0 |
| 21 | 7.0 | 5.0 | 8.5 | 6.5 | 9.5 | 8.5 | 10.0 | 9.0 | 11.0 | 9.5 | 12.0 | 10.0 |
| 22 | 6.0 | 5.0 | 8.0 | 6.5 | 9.5 | 8.0 | 9.5 | 9.0 | 10.5 | 10.0 | 10.5 | 10.5 |
| 23 | 6.0 | 5.0 | 8.5 | 7.0 | 9.5 | 8.5 | 10.5 | 9.0 | 10.5 | 10.0 | 11.5 | 10.5 |
| 24 | 6.0 | 5.0 | 8.5 | 7.0 | 9.5 | 8.5 | 10.5 | 9.0 | 11.0 | 10.0 | 12.0 | 10.0 |
| 25 | 6.5 | 5.0 | 8.5 | 7.0 | 10.0 | 8.0 | 10.5 | 9.5 | 11.0 | 10.0 | 12.0 | 10.0 |
| 26 | 7.0 | 5.0 | 8.0 | 7.0 | 9.5 | 8.0 | 10.5 | 9.5 | 11.0 | 10.0 | 12.0 | 10.5 |
| 27 | 7.0 | 5.0 | 8.5 | 7.0 | 10.0 | 8.5 | 10.5 | 9.5 | 10.5 | 10.0 | 11.5 | 10.5 |
| 28 | 8.0 | 5.5 | 8.0 | 6.5 | --- | --- | 11.0 | 9.5 | 11.5 | 10.0 | 12.0 | 10.5 |
| 29 | 8.0 | 5.5 | 8.0 | 6.5 | --- | --- | 11.0 | 9.5 | 11.5 | 10.0 | --- | --- |
| 30 | 7.0 | 6.0 | 8.0 | 6.0 | 9.0 | 8.0 | 11.0 | 9.5 | 11.5 | 9.5 | --- | --- |
| 31 | --- | --- | 7.0 | 6.0 | --- | --- | 11.0 | 9.5 | 11.5 | 10.0 | --- | --- |
| MONTH | 8.0 | 4.5 | --- | --- | 10.0 | 6.0 | 11.0 | 7.0 | 11.5 | 9.5 | 12.0 | 9.5 |
| YEAR | 12.0 | 4.5 | | | | | | | | | | |

## 12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA--Continued

### QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

### IDENTIFICATION OF PHYTOPLANKTON

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                                         300 CELLS/ML

SEPT. 27, 1976  _ORGANISM__NAME______________  _COMMON__NAME______  CELLS/ML      PER_CENT
  1230 HOURS
                CHRYSOPHYTA
                .BACILLARIOPHYCEAE             DIATOMS
                ..PENNALES                     PENNATE
                ...ACHNANTHACEAE
                ....ACHNANTHES                                            9            3
                ....COCCONEIS                                            18            6
                ....RHOICOSPHENIA                                        18            6
                ...CYMBELLACEAE
                ....CYMBELLA                                              9            3
                ...FRAGILARIACEAE
              D ....ASTERIONELLA                                        150           52
                ...GOMPHONEMATACEAE
                ....GOMPHONEMA                                            9            3
                ...NAVICULACEAE                NAVICULOID
                ....NAVICULA                                              9            3
                ...NITZSCHIACEAE
                ....NITZSCHIA                                       _____36          _12
                                                           TOTALS       260           88       2.048=DIVERSITY

                CYANOPHYTA                     BLUE-GREEN ALGAE
                .MYXOPHYCEAE
                ..OSCILLATORIALES              FILAMENTOUS
                ...OSCILLATORIACEAE
                ....PHORMIDIUM                                      _____36          _12
                                                           TOTALS        36           12       0.000=DIVERSITY

               NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
                     ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
                     DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
                                     PHYL/DIV 0.533
                                        CLASS 0.533
                                        ORDER 0.533
                                       FAMILY 2.102
                                       GENERA 2.333
                SAMPLING METHOD - EDI

                                          11 CELLS/ML

OCT. 16, 1975   _ORGANISM__NAME______________  _COMMON__NAME______  CELLS/ML      PER_CENT
  1010 HOURS
                CHRYSOPHYTA
                .BACILLARIOPHYCEAE             DIATOMS
                ..PENNALES                     PENNATE
                ...CYMBELLACEAE
              L ....CYMBELLA                                                           0
              L ....EPITHEMIA                                                          0
              L ....RHOPALODIA                                                         0
                ...DIATOMACEAE
              L ....DIATOMA                                                            0
                ...FRAGILARIACEAE
              L ....FRAGILARIA                                                         0
                ...GOMPHONEMATACEAE
              D ....GOMPHONEMA                                           11          100
                ...NAVICULACEAE                NAVICULOID
              L ....NAVICULA                                                           0
                ...NITZSCHIACEAE
              L ....NITZSCHIA                                       ______            _0
                                                           TOTALS        11          100       0.000=DIVERSITY

               NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
                     L - LESS THEN 1%; MAY NOT HAVE BEEN ACTUALLY COUNTED
                     ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
                     SAMPLING METHOD - EDI


NOV. 21, 1975                  - - - NO ORGANISMS REPORTED - - -
  0830 HOURS

               NOTE: ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
                     SAMPLING METHOD - EDI
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12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

IDENTIFICATION OF PHYTOPLANKTON

10 CELLS/ML

| DEC. 22, 1975<br>1300 HOURS | _ORGANISM__NAME | _COMMON__NAME | | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|---|
| | CHRYSOPHYTA | | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | | |
| | ..CENTRALES | CENTRIC | | | | |
| | ...COSCINODISCACEAE | | | | | |
| D | ....MELOSIRA | | | 10 | 100 | |
| | | | TOTALS | 10 | 100 | 0.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
SAMPLING METHOD - EDI

2 CELLS/ML

| JAN. 21, 1976<br>0930 HOURS | _ORGANISM__NAME | _COMMON__NAME | | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|---|
| | CHRYSOPHYTA | | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | | |
| | ..PENNALES | PENNATE | | | | |
| | ...CYMBELLACEAE | | | | | |
| D | ....CYMBELLA | | | 2 | 100 | |
| | | | TOTALS | 2 | 100 | 0.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
SAMPLING METHOD - EDI

140 CELLS/ML

| FEB. 19, 1976<br>1200 HOURS | _ORGANISM__NAME | _COMMON__NAME | | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|---|
| | CHLOROPHYTA | GREEN ALGAE | | | | |
| | .CHLOROPHYCEAE | | | | | |
| | ..VOLVOCALES | | | | | |
| | ...PHACOTACEAE | | | | | |
| | ....PTEROMONAS | | | 5 | 3 | |
| | | | TOTALS | 5 | 3 | 0.000=DIVERSITY |
| | CHRYSOPHYTA | | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | | |
| | ..PENNALES | PENNATE | | | | |
| | ...FRAGILARIACEAE | | | | | |
| | ....H.ARCUS | | | | | |
| | .....H.ARCUS | | | 9 | 7 | |
| | ...ACHNANTHACEAE | | | | | |
| | ....ACHNANTHES | | | 5 | 3 | |
| | ...CYMBELLACEAE | | | | | |
| | ....CYMBELLA | | | 5 | 3 | |
| | ...FRAGILARIACEAE | | | | | |
| | ....FRAGILARIA | | | 9 | 7 | |
| | ...GOMPHONEMATACEAE | | | | | |
| | ....GOMPHONEMA | | | 14 | 10 | |
| | ...NITZSCHIACEAE | | | | | |
| D | ....NITZSCHIA | | | 23 | 17 | |
| | | | TOTALS | 65 | 47 | 2.353=DIVERSITY |
| | CYANOPHYTA | BLUE-GREEN ALGAE | | | | |
| | .MYXOPHYCEAE | | | | | |
| | ..OSCILLATORIALES | FILAMENTOUS | | | | |
| | ...OSCILLATORIACEAE | | | | | |
| D | ....OSCILLATORIA | | | 70 | 50 | |
| | | | TOTALS | 70 | 50 | 0.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 1.177
CLASS 1.177
ORDER 1.177
FAMILY 2.275
GENERA 2.275
SAMPLING METHOD - EDI

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

IDENTIFICATION OF PHYTOPLANKTON

120 CELLS/ML

| MAR. 22, 1976<br>1045 HOURS | _ORGANISM__NAME | _COMMON__NAME | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|
| | CHRYSOPHYTA | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | ..PENNALES | PENNATE | | | |
| | ...FRAGILARIACEAE | | | | |
| D | ....H.ARCUS | | 31 | 26 | |
| | ...DIATOMACEAE | | | | |
| | ....DIATOMA | | 6 | 5 | |
| | ...FRAGILARIACEAE | | | | |
| D | ....FRAGILARIA | | 37 | 32 | |
| | ...GOMPHONEMATACEAE | | | | |
| D | ....GOMPHONEMA | | 25 | 21 | |
| | ...NITZSCHIACEAE | | | | |
| D | ....NITZSCHIA | | 19 | 16 | |
| | | TOTALS | 120 | 100 | 2.149=DIVERSITY |

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
FAMILY 2.149
GENERA 2.149
SAMPLING METHOD - EDI

160 CELLS/ML

| APR. 21, 1976<br>0830 HOURS | _ORGANISM__NAME | _COMMON__NAME | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|
| | CHRYSOPHYTA | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | ..PENNALES | PENNATE | | | |
| | ...FRAGILARIACEAE | | | | |
| D | ....H.ARCUS | | 39 | 25 | |
| | ..CENTRALES | CENTRIC | | | |
| | ...COSCINODISCACEAE | | | | |
| D | ....CYCLOTELLA | | 26 | 17 | |
| | ..PENNALES | PENNATE | | | |
| | ...CYMBELLACEAE | | | | |
| | ....CYMBELLA | | 7 | 4 | |
| | ...DIATOMACEAE | | | | |
| D | ....DIATOMA | | 26 | 17 | |
| | ...FRAGILARIACEAE | | | | |
| | ....FRAGILARIA | | 7 | 4 | |
| | ...GOMPHONEMATACEAE | | | | |
| D | ....GOMPHONEMA | | 26 | 17 | |
| | ...NITZSCHIACEAE | | | | |
| D | ....NITZSCHIA | | 26 | 17 | |
| | | TOTALS | 160 | 101 | 2.605=DIVERSITY |

NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
ORDER 1.384
FAMILY 2.605
GENERA 2.605
SAMPLING METHOD - EDI

## 12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

### IDENTIFICATION OF PHYTOPLANKTON

75 CELLS/ML

| MAY 19, 1976<br>1230 HOURS | _ORGANISM__NAME_____________ | _COMMON__NAME______ | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|
| | CHRYSOPHYTA | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | ..PENNALES | PENNATE | | | |
| | ...ACHNANTHACEAE | | | | |
| | ....COCCONEIS | | 10 | 13 | |
| | ...DIATOMACEAE | | | | |
| | ....DIATOMA | | 5 | 7 | |
| | ...EUNOTIACEAE | | | | |
| | ....EUNOTIA | | 10 | 13 | |
| | ...GOMPHONEMATACEAE | | | | |
| D | ....GOMPHONEMA | | 35 | 47 | |
| | ...NAVICULACEAE | NAVICULOID | | | |
| | ....NAVICULA | | 10 | 13 | |
| | | TOTALS | 70 | 93 | 1.975=DIVERSITY |
| | EUGLENOPHYTA | EUGLENOIDS | | | |
| | .EUGLENOPHYCEAE | | | | |
| | ..EUGLENALES | | | | |
| | ...EUGLENACEAE | | | | |
| | ....TRACHELOMONAS | | 5 | 7 | |
| | | TOTALS | 5 | 7 | 0.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
PHYL/DIV 0.353
CLASS 0.353
ORDER 0.353
FAMILY 2.197
GENERA 2.197
SAMPLING METHOD - EDI

140 CELLS/ML

| JUNE 30, 1976<br>1230 HOURS | _ORGANISM__NAME_____________ | _COMMON__NAME______ | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|
| | CHRYSOPHYTA | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | ..PENNALES | PENNATE | | | |
| | ...FRAGILARIACEAE | | | | |
| | ....H.ARCUS | | 18 | 13 | |
| | ..CENTRALES | CENTRIC | | | |
| | ...COSCINODISCACEAE | | | | |
| | ....CYCLOTELLA | | 13 | 10 | |
| | ..PENNALES | PENNATE | | | |
| | ...ACHNANTHACEAE | | | | |
| | ....ACHNANTHES | | 9 | 6 | |
| | ...CYMBELLACEAE | | | | |
| | ....CYMBELLA | | 4 | 3 | |
| | ...DIATOMACEAE | | | | |
| | ....DIATOMA | | 4 | 3 | |
| | ...GOMPHONEMATACEAE | | | | |
| D | ....GOMPHONEMA | | 62 | 45 | |
| | ...MERIDIONACEAE | | | | |
| | ....MERIDION | | 18 | 13 | |
| | ...NITZSCHIACEAE | | | | |
| | ....NITZSCHIA | | 4 | 3 | |
| | | TOTALS | 130 | 96 | 2.372=DIVERSITY |
| | PYRRHOPHYTA | FIRE ALGAE | | | |
| | .DINOPHYCEAE | DINOFLAGELLATES | | | |
| | ..PERIDINIALES | | | | |
| | ...GLENODINIACEAE | | | | |
| | ....GLENODINIUM | | 4 | 3 | |
| | | TOTALS | 4 | 3 | 0.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
PHYL/DIV 0.206
CLASS 0.206
ORDER 1.187
FAMILY 2.501
GENERA 2.501
SAMPLING METHOD - EDI

## 12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA--Continued

### QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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                                  IDENTIFICATION OF PHYTOPLANKTON

                                          60 CELLS/ML

JULY 22, 1976   _ORGANISM__NAME_______________   _COMMON__NAME______   CELLS/ML      PER_CENT
 0930 HOURS
                CHRYSOPHYTA
                .BACILLARIOPHYCEAE               DIATOMS
                ..PENNALES                       PENNATE
                ...FRAGILARIACEAE
                ....M.ARCUS                                                   3             5
                ..CENTRALES                      CENTRIC
                ...COSCINODISCACEAE
              D ....CYCLOTELLA                                               28            47
                ..PENNALES                       PENNATE
                ...ACHNANTHACEAE
                ....COCCONEIS                                                 3             5
                ...CYMBELLACEAE
              D ....CYMBELLA                                                  9            16
                ...GOMPHONEMATACEAE
              D ....GOMPHONEMA                                               13            21
                ...NITZSCHIACEAE
                ....NITZSCHIA                                            _____3            _5
                                                         TOTALS              60            99       2.075=DIVERSITY

             NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
                   ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
                   DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
                                     ORDER 1.245
                                     FAMILY 2.075
                                     GENERA 2.075
                SAMPLING METHOD - EDI

                                          70 CELLS/ML

AUG. 25, 1976   _ORGANISM__NAME_______________   _COMMON__NAME______   CELLS/ML      PER_CENT
 1245 HOURS
                CHRYSOPHYTA
                .BACILLARIOPHYCEAE               DIATOMS
                ..PENNALES                       PENNATE
                ...FRAGILARIACEAE
                ....M.ARCUS                                                   7            10
                ..CENTRALES                      CENTRIC
                ...COSCINODISCACEAE
              D ....CYCLOTELLA                                               21            30
                ..PENNALES                       PENNATE
                ...DIATOMACEAE
              D ....DIATOMA                                                  14            20
                ...FRAGILARIACEAE
                ....ASTERIONELLA                                              7            10
                ...GOMPHONEMATACEAE
              D ....GOMPHONEMA                                           ____21           _30
                                                         TOTALS              70           100       2.171=DIVERSITY

             NOTE: D - DOMINANT ORGANISM; GREATER OR EQUAL TO 15%
                   ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
                   DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
                                     ORDER 1.295
                                     FAMILY 2.171
                                     GENERA 2.171
                SAMPLING METHOD - EDI
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### QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PERIPHYTON

| Date | Length of exposure (days) | Biomass ($g/m^2$) |  | Chlorophyll a ($mg/m^2$) | Chlorophyll b ($mg/m^2$) | Biomass pigment ratio | Sampling method |
|---|---|---|---|---|---|---|---|
|  |  | Dry weight | Ash weight |  |  |  |  |
| Oct. 16 | 31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | Polyethylene strip |
| Aug. 25 | 28 | 0.154 | 0.077 | 0.000 | 0.000 | 0.0 |  |
| Sept.27 | 33 | 0.615 | 0.462 | --- | --- | --- |  |

## 12047300 MORSE CREEK NEAR PORT ANGELES, WA

LOCATION.--Lat 48°02'16", long 123°20'57", in SW¼NE¼ sec.5, T.29 N., R.5 W., Clallam County, Hydrologic Unit 17110020, on right bank at steel foot bridge, 1,000 ft (305 m) downstream from Port Angeles diversion dam, 6.4 mi (10.3 km) upstream from mouth, and 6.8 mi (10.9 km) southeast of ferry terminal in Port Angeles.

DRAINAGE AREA.--46.6 mi² (120.7 km²).

PERIOD OF RECORD.--July 1966 to September 1976 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 630 ft (192 m), from topographic map.

REMARKS.--Records good. Some regulation by city of Port Angeles diversion dam 1,000 ft (305 m) upstream. Monthly and annual mean diversion, in ft³/s, for water year 1976 furnished by the city of Port Angeles are as follows:

| OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.1 | 5.7 | 5.3 | 5.8 | 6.5 | 6.5 | 7.7 | 7.8 | 10.3 | 12.1 | 10.3 | 8.9 | 7.8 |

AVERAGE DISCHARGE.--10 years, 134 ft³/s (3.795 m³/s), 97,080 acre-ft/yr (120 hm³/yr), adjusted for diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,160 ft³/s (89.5 m³/s) Dec. 4, 1975, gage height, 7.19 ft (2.192 m) from rating curve extended above 1,300 ft³/s (36.8 m³/s); minimum, 5.0 ft³/s (0.14 m³/s) Oct. 8, 13, 1966; minimum gage height, 1.18 ft (0.360 m) Oct. 17, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft³/s (22.7 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 1900 | 908 | 25.7 | 4.98 | 1.518 | Dec. 4 | 0200 | *3,160 | 89.5 | *7.19 | 2.192 |
| Nov. 15 | 0415 | 2,700 | 76.5 | 6.85 | 2.088 | Dec. 26 | 0800 | 890 | 25.2 | 4.95 | 1.509 |

Minimum discharge, 22 ft³/s (0.62 m³/s) Sept. 30; minimum gage height, 1.70 ft (0.518 m) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 181 | 232 | 235 | 182 | 107 | 98 | 190 | 136 | 166 | 84 | 47 |
| 2 | 27 | 197 | 740 | 204 | 170 | 101 | 93 | 351 | 132 | 155 | 82 | 45 |
| 3 | 51 | 235 | 1600 | 182 | 161 | 96 | 90 | 252 | 124 | 148 | 84 | 44 |
| 4 | 76 | 250 | 1640 | 144 | 145 | 93 | 89 | 206 | 121 | 161 | 83 | 44 |
| 5 | 166 | 267 | 646 | 166 | 142 | 90 | 90 | 190 | 117 | 168 | 82 | 46 |
| 6 | 117 | 250 | 441 | 150 | 165 | 88 | 97 | 175 | 118 | 181 | 80 | 47 |
| 7 | 68 | 310 | 336 | 144 | 131 | 86 | 103 | 186 | 126 | 184 | 80 | 44 |
| 8 | 54 | 285 | 320 | 142 | 130 | 85 | 123 | 252 | 145 | 201 | 79 | 42 |
| 9 | 57 | 217 | 302 | 129 | 121 | 86 | 129 | 305 | 161 | 184 | 74 | 40 |
| 10 | 60 | 175 | 260 | 140 | 120 | 90 | 129 | 360 | 177 | 164 | 71 | 38 |
| 11 | 56 | 152 | 232 | 142 | 181 | 89 | 186 | 305 | 172 | 147 | 68 | 37 |
| 12 | 49 | 145 | 208 | 131 | 262 | 86 | 170 | 255 | 163 | 142 | 70 | 37 |
| 13 | 46 | 247 | 190 | 121 | 194 | 84 | 145 | 252 | 147 | 137 | 74 | 36 |
| 14 | 47 | 818 | 170 | 240 | 164 | 83 | 131 | 235 | 142 | 129 | 74 | 39 |
| 15 | 63 | 1300 | 161 | 570 | 152 | 82 | 120 | 215 | 173 | 128 | 79 | 37 |
| 16 | 58 | 800 | 147 | 606 | 161 | 83 | 111 | 217 | 232 | 134 | 89 | 35 |
| 17 | 690 | 450 | 140 | 414 | 188 | 93 | 105 | 206 | 235 | 140 | 74 | 36 |
| 18 | 490 | 300 | 136 | 312 | 195 | 112 | 100 | 181 | 250 | 136 | 67 | 35 |
| 19 | 387 | 250 | 132 | 250 | 173 | 108 | 96 | 166 | 267 | 126 | 74 | 34 |
| 20 | 272 | 200 | 128 | 215 | 152 | 103 | 95 | 154 | 242 | 124 | 71 | 31 |
| 21 | 195 | 179 | 123 | 188 | 140 | 97 | 90 | 145 | 212 | 123 | 65 | 32 |
| 22 | 161 | 172 | 118 | 193 | 136 | 107 | 88 | 145 | 188 | 115 | 62 | 36 |
| 23 | 134 | 197 | 123 | 173 | 172 | 103 | 84 | 145 | 181 | 108 | 60 | 38 |
| 24 | 120 | 285 | 199 | 157 | 161 | 147 | 82 | 155 | 177 | 108 | 58 | 36 |
| 25 | 132 | 265 | 177 | 145 | 147 | 139 | 79 | 154 | 164 | 108 | 57 | 34 |
| 26 | 123 | 354 | 685 | 148 | 136 | 123 | 76 | 163 | 152 | 107 | 55 | 33 |
| 27 | 114 | 287 | 518 | 372 | 128 | 112 | 77 | 208 | 147 | 101 | 55 | 31 |
| 28 | 107 | 226 | 369 | 280 | 118 | 104 | 80 | 188 | 152 | 93 | 54 | 31 |
| 29 | 320 | 197 | 357 | 247 | 112 | 97 | 93 | 168 | 170 | 91 | 51 | 31 |
| 30 | 345 | 193 | 339 | 212 | --- | 98 | 124 | 150 | 175 | 91 | 49 | 30 |
| 31 | 206 | --- | 287 | 195 | --- | 107 | --- | 140 | --- | 88 | 48 | --- |
| TOTAL | 4817 | 9384 | 11456 | 6987 | 4519 | 3079 | 3173 | 6414 | 5098 | 4188 | 2153 | 1126 |
| MEAN | 155 | 313 | 370 | 225 | 156 | 99.3 | 106 | 207 | 170 | 135 | 69.5 | 37.5 |
| MAX | 690 | 1300 | 1640 | 606 | 262 | 147 | 186 | 360 | 267 | 201 | 89 | 47 |
| MIN | 26 | 145 | 118 | 121 | 112 | 82 | 76 | 140 | 117 | 88 | 48 | 30 |
| AC-FT | 9550 | 18610 | 22720 | 13860 | 8960 | 6110 | 6290 | 12720 | 10110 | 8310 | 4270 | 2230 |

CAL YR 1975 TOTAL 51534 MEAN 141 MAX 1640 MIN 26 AC-FT 102200
WTR YR 1976 TOTAL 62394 MEAN 170 MAX 1640 MIN 26 AC-FT 123800

NOTE.--No gage-height record Nov. 15-20.

## 12048000 DUNGENESS RIVER NEAR SEQUIM, WA

LOCATION.--Lat 48°00'52", long 123°07'53", in NW¼NE¼ sec.13, T.29 N., R.4 W., Clallam County, Hydrologic Unit 17110020, on right bank 1.0 mi (1.6 km) upstream from Canyon Creek, 4.8 mi (7.7 km) southwest of Sequim, and at mile 11.8 (19.0 km).

DRAINAGE AREA.--156 mi² (404 km²).

PERIOD OF RECORD.--June 1923 to September 1930, June 1937 to current year. July 1897 to July 1898 at site below Canyon Creek, published as "near Sequim", records not equivalent.

REVISED RECORDS.--WSP 1316: 1924-25(M), 1927(M). WSP 1932: 1957, 1958-59(M), 1960.

GAGE.--Water-stage recorder. Datum of gage is 569.3 ft (173.52 m) above mean sea level (river-profile survey). June 8, 1923, to Sept. 30, 1930, nonrecording gage just above fish-hatchery diversion 0.5 mi (0.8 km) downstream at different datum. June 19 to Aug. 12, 1937, nonrecording gage at present site and datum.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--46 years (water years 1924-30, 1938-76), 394 ft³/s (11.16 m³/s), 34.30 in/yr (871 mm/yr), 285,500 acre-ft/yr (352 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,820 ft³/s (193 m³/s) Nov. 27, 1949, gage height, 8.58 ft (2.615 m) from floodmarks, from rating extended above 2,000 ft³/s (56.6 m³/s) on basis of slope-area measurement of peak flow; minimum discharge, 68 ft³/s (1.93 m³/s) Dec. 9, 10, 1972, during period of ice effect.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,700 ft³/s (48.1 m³/s) and maximum (*) from high-water mark in well:

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 2100 | 2,340 | 66.3 | 5.83 | 1.777 | Dec. 3 | unknown | *5,150 | 146 | *7.65 | 2.332 |
| Nov. 15 | 0600 | 3,620 | 103 | 6.75 | 2.057 | Dec. 26 | 0900 | 2,200 | 62.3 | 5.72 | 1.743 |

Minimum discharge, 139 ft³/s (3.94 m³/s) Oct. 1, 2, gage height, 2.83 ft (0.863 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 141 | 418 | 900 | 591 | 465 | 253 | 222 | 450 | 418 | 585 | 427 | 242 |
| 2 | 139 | 397 | 2200 | 555 | 441 | 245 | 217 | 873 | 397 | 544 | 381 | 233 |
| 3 | 203 | 533 | 3900 | 511 | 423 | 233 | 217 | 715 | 377 | 567 | 409 | 225 |
| 4 | 256 | 881 | 3200 | 511 | 381 | 230 | 222 | 621 | 365 | 667 | 405 | 228 |
| 5 | 354 | 817 | 1600 | 470 | 365 | 225 | 239 | 544 | 354 | 722 | 393 | 259 |
| 6 | 311 | 660 | 1100 | 432 | 365 | 222 | 275 | 490 | 369 | 802 | 401 | 259 |
| 7 | 236 | 547 | 860 | 414 | 354 | 222 | 275 | 527 | 381 | 802 | 405 | 228 |
| 8 | 206 | 505 | 900 | 401 | 346 | 219 | 358 | 708 | 427 | 865 | 397 | 209 |
| 9 | 414 | 432 | 770 | 377 | 332 | 225 | 393 | 841 | 495 | 715 | 385 | 196 |
| 10 | 511 | 389 | 680 | 377 | 318 | 242 | 365 | 981 | 579 | 591 | 385 | 185 |
| 11 | 358 | 354 | 410 | 373 | 335 | 236 | 495 | 849 | 507 | 579 | 385 | 183 |
| 12 | 248 | 339 | 560 | 354 | 385 | 230 | 505 | 694 | 533 | 597 | 377 | 180 |
| 13 | 253 | 460 | 510 | 339 | 350 | 222 | 436 | 765 | 470 | 567 | 377 | 177 |
| 14 | 245 | 1810 | 460 | 414 | 332 | 219 | 389 | 765 | 460 | 561 | 358 | 193 |
| 15 | 343 | 2750 | 420 | 765 | 314 | 214 | 358 | 680 | 597 | 579 | 358 | 201 |
| 16 | 328 | 1440 | 390 | 1220 | 321 | 214 | 325 | 667 | 849 | 621 | 389 | 190 |
| 17 | 1860 | 939 | 360 | 865 | 328 | 239 | 301 | 660 | 833 | 654 | 328 | 185 |
| 18 | 1260 | 701 | 350 | 680 | 343 | 268 | 288 | 591 | 873 | 615 | 294 | 183 |
| 19 | 825 | 547 | 340 | 579 | 328 | 256 | 275 | 555 | 939 | 579 | 294 | 180 |
| 20 | 609 | 522 | 330 | 522 | 308 | 245 | 275 | 505 | 889 | 628 | 311 | 185 |
| 21 | 511 | 470 | 320 | 480 | 297 | 233 | 262 | 490 | 772 | 603 | 301 | 193 |
| 22 | 432 | 550 | 310 | 470 | 297 | 242 | 253 | 511 | 701 | 495 | 284 | 201 |
| 23 | 377 | 700 | 360 | 441 | 339 | 233 | 245 | 511 | 654 | 511 | 275 | 206 |
| 24 | 346 | 800 | 505 | 409 | 328 | 265 | 239 | 505 | 654 | 567 | 275 | 196 |
| 25 | 350 | 700 | 490 | 389 | 311 | 262 | 230 | 485 | 597 | 555 | 281 | 183 |
| 26 | 332 | 800 | 1690 | 414 | 297 | 245 | 222 | 485 | 544 | 533 | 265 | 177 |
| 27 | 308 | 670 | 1310 | 697 | 288 | 230 | 225 | 757 | 549 | 480 | 253 | 180 |
| 28 | 291 | 570 | 905 | 701 | 275 | 219 | 233 | 701 | 597 | 441 | 272 | 183 |
| 29 | 485 | 500 | 849 | 609 | 265 | 211 | 253 | 573 | 694 | 480 | 272 | 183 |
| 30 | 660 | 480 | 787 | 538 | --- | 214 | 318 | 490 | 696 | 450 | 259 | 177 |
| 31 | 460 | --- | 667 | 500 | --- | 239 | --- | 450 | --- | 427 | 253 | --- |
| TOTAL | 13692 | 21801 | 28433 | 16598 | 9831 | 7252 | 8910 | 19439 | 17658 | 18382 | 10449 | 6000 |
| MEAN | 442 | 727 | 917 | 535 | 339 | 234 | 297 | 627 | 589 | 593 | 337 | 200 |
| MAX | 1860 | 2750 | 3900 | 1220 | 465 | 268 | 505 | 981 | 939 | 865 | 427 | 259 |
| MIN | 139 | 339 | 310 | 339 | 265 | 211 | 217 | 450 | 354 | 427 | 253 | 177 |
| CFSM | 2.83 | 4.66 | 5.88 | 3.43 | 2.17 | 1.50 | 1.90 | 4.02 | 3.78 | 3.80 | 2.16 | 1.28 |
| IN. | 3.26 | 5.20 | 6.78 | 3.96 | 2.34 | 1.73 | 2.12 | 4.64 | 4.21 | 4.38 | 2.49 | 1.43 |
| AC-FT | 27160 | 43240 | 56400 | 32920 | 19500 | 14380 | 17670 | 38560 | 35020 | 36460 | 20730 | 11900 |

CAL YR 1975 TOTAL 161348 MEAN 442 MAX 3900 MIN 132 CFSM 2.83 IN 38.48 AC-FT 320000
WTR YR 1976 TOTAL 178445 MEAN 488 MAX 3900 MIN 139 CFSM 3.13 IN 42.55 AC-FT 353900

NOTE.--No gage-height record Nov. 21 to Dec. 23.

## DUCKABUSH RIVER BASIN

### 12054000 DUCKABUSH RIVER NEAR BRINNON, WA

LOCATION.--Lat 47°41'03", long 123°00'37", in NW¼SW¼ sec.1, T.25 N., R.3 W., Jefferson County, Hydrologic Unit 17110018, Olympic National Forest, on left bank 5.2 mi (8.4 km) west of Brinnon and at mile 4.5 (7.2 km).

DRAINAGE AREA.--66.5 $mi^2$ (172 $km^2$).

PERIOD OF RECORD.--August to December 1910 (gage heights only), December 1910 to December 1911, June 1938 to current year. Published as "near Duckabush" 1910-11. Chemical analyses April 1972 to September 1974.

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 241.49 ft (73.61 m) above mean sea level. Aug. 19, 1910, to Dec. 31, 1911, nonrecording gage at same site at different datum.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--38 years (water years 1939-76), 422 $ft^3/s$ (11.95 $m^3/s$), 86.18 in/yr (2,189 mm/yr), 305,700 acre-ft/yr (377 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,960 $ft^3/s$ (254 $m^3/s$) Nov. 26, 1949, gage height, 10.06 ft (3.066 m), from rating curve extended above 4,800 $ft^3/s$ (136 $m^3/s$) on basis of slope-area measurement of peak flow; minimum, 45 $ft^3/s$ (1.27 $m^3/s$) Oct. 26, 28, 29, 1942; minimum gage height, 1.32 ft (0.402 m) Sept. 30, 1939.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 $ft^3/s$ (70.8 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 9 | 1400 | 3,980 | 113 | 6.67 | 2.033 | Dec. 3 | 2400 | 4,760 | 135 | 7.33 | 2.234 |
| Oct. 17 | 1900 | 3,970 | 112 | 6.66 | 2.030 | Dec. 26 | 1200 | 3,430 | 97.1 | 6.32 | 1.926 |
| Nov. 15 | 0200 | *5,780 | 164 | *8.06 | 2.457 | | | | | | |

Minimum discharge, 89 $ft^3/s$ (2.52 $m^3/s$) Sept. 30, gage height, 1.63 ft (0.497 m)

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 97 | 736 | 704 | 460 | 331 | 177 | 236 | 510 | 324 | 400 | 292 | 151 |
| 2 | 96 | 833 | 2120 | 396 | 310 | 165 | 207 | 1010 | 313 | 376 | 269 | 145 |
| 3 | 256 | 1120 | 3220 | 359 | 292 | 157 | 197 | 674 | 296 | 392 | 296 | 137 |
| 4 | 463 | 1200 | 2770 | 432 | 260 | 149 | 210 | 535 | 278 | 484 | 289 | 137 |
| 5 | 550 | 1210 | 1190 | 412 | 242 | 143 | 248 | 468 | 266 | 496 | 275 | 153 |
| 6 | 456 | 1040 | 794 | 348 | 233 | 139 | 306 | 412 | 285 | 555 | 269 | 145 |
| 7 | 286 | 922 | 635 | 320 | 221 | 139 | 282 | 460 | 320 | 575 | 285 | 129 |
| 8 | 285 | 747 | 610 | 320 | 212 | 137 | 416 | 704 | 366 | 800 | 269 | 119 |
| 9 | 2880 | 607 | 620 | 292 | 200 | 139 | 452 | 818 | 428 | 575 | 254 | 111 |
| 10 | 2380 | 518 | 535 | 303 | 190 | 147 | 376 | 872 | 464 | 480 | 248 | 109 |
| 11 | 1020 | 457 | 460 | 380 | 236 | 151 | 510 | 698 | 444 | 452 | 248 | 107 |
| 12 | 618 | 435 | 392 | 320 | 327 | 145 | 460 | 550 | 400 | 452 | 245 | 105 |
| 13 | 455 | 612 | 363 | 282 | 310 | 143 | 369 | 625 | 345 | 436 | 236 | 103 |
| 14 | 410 | 2220 | 331 | 525 | 320 | 137 | 324 | 590 | 338 | 432 | 239 | 127 |
| 15 | 541 | 3380 | 317 | 1250 | 292 | 135 | 285 | 515 | 468 | 448 | 254 | 127 |
| 16 | 469 | 1330 | 292 | 1450 | 338 | 141 | 251 | 520 | 600 | 496 | 296 | 115 |
| 17 | 2930 | 872 | 275 | 879 | 334 | 212 | 227 | 505 | 550 | 515 | 233 | 113 |
| 18 | 1680 | 668 | 266 | 625 | 328 | 396 | 215 | 440 | 640 | 484 | 200 | 109 |
| 19 | 1210 | 570 | 263 | 496 | 292 | 334 | 205 | 412 | 680 | 452 | 195 | 107 |
| 20 | 832 | 500 | 251 | 424 | 257 | 263 | 210 | 384 | 600 | 468 | 239 | 111 |
| 21 | 637 | 452 | 242 | 373 | 233 | 230 | 202 | 376 | 515 | 412 | 205 | 111 |
| 22 | 528 | 460 | 233 | 352 | 224 | 272 | 190 | 388 | 480 | 352 | 187 | 113 |
| 23 | 450 | 585 | 254 | 334 | 352 | 254 | 182 | 388 | 448 | 373 | 177 | 113 |
| 24 | 403 | 788 | 545 | 303 | 289 | 313 | 190 | 420 | 448 | 416 | 180 | 105 |
| 25 | 549 | 640 | 555 | 275 | 254 | 289 | 180 | 436 | 404 | 408 | 177 | 100 |
| 26 | 530 | 734 | 2460 | 282 | 233 | 257 | 167 | 404 | 369 | 400 | 167 | 98 |
| 27 | 512 | 585 | 1320 | 851 | 221 | 233 | 172 | 565 | 376 | 355 | 163 | 94 |
| 28 | 493 | 484 | 782 | 560 | 205 | 210 | 197 | 476 | 420 | 334 | 182 | 92 |
| 29 | 1300 | 420 | 764 | 468 | 190 | 195 | 233 | 404 | 480 | 355 | 172 | 92 |
| 30 | 1250 | 428 | 698 | 396 | --- | 207 | 338 | 363 | 452 | 313 | 165 | 91 |
| 31 | 760 | --- | 540 | 355 | --- | 278 | --- | 338 | --- | 296 | 159 | --- |
| TOTAL | 25326 | 25553 | 24801 | 14822 | 7726 | 6287 | 8037 | 16260 | 12797 | 13782 | 7065 | 3469 |
| MEAN | 817 | 852 | 800 | 478 | 266 | 203 | 268 | 525 | 427 | 445 | 228 | 116 |
| MAX | 2930 | 3380 | 3220 | 1450 | 352 | 396 | 510 | 1010 | 680 | 800 | 296 | 153 |
| MIN | 96 | 420 | 233 | 275 | 190 | 135 | 167 | 338 | 266 | 296 | 159 | 91 |
| CFSM | 12.3 | 12.8 | 12.0 | 7.19 | 4.00 | 3.05 | 4.03 | 7.89 | 6.42 | 6.69 | 3.43 | 1.74 |
| IN. | 14.17 | 14.29 | 13.87 | 8.29 | 4.32 | 3.52 | 4.50 | 9.10 | 7.16 | 7.71 | 3.95 | 1.94 |
| AC-FT | 50230 | 50680 | 49190 | 29400 | 15320 | 12470 | 15940 | 32250 | 25380 | 27340 | 14010 | 6880 |

CAL YR 1975 TOTAL 182034 MEAN 499 MAX 3380 MIN 96 CFSM 7.50 IN 101.83 AC-FT 361100
WTR YR 1976 TOTAL 165925 MEAN 453 MAX 3380 MIN 91 CFSM 6.81 IN 92.82 AC-FT 329100

## 12056500 NORTH FORK SKOKOMISH RIVER BELOW STAIRCASE RAPIDS, NEAR HOODSPORT, WA

LOCATION.--Lat 47°30'52", long 123°19'43", in NW¼ sec.4, T.23 N., R.5 W., Mason County, Hydrologic Unit 17110017, Olympic National Park, on left bank 1.2 mi (1.9 km) upstream from Lake Cushman, 2.8 mi (4.5 km) upstream from Dry Creek, 11.3 mi (18.2 km) northwest of Hoodsport, and at mile 29.2 (47.0 km).

DRAINAGE AREA.--57.2 $mi^2$ (148 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1924 to current year.

REVISED RECORDS.--WSP 1286: 1932, 1935, 1937(M), 1942(M), 1947(P), 1948(M), WSP 1636: 1940(M). WSP 1736: 1927. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 762.26 ft (232.34 m) above mean sea level. Prior to Nov. 1, 1934, water-stage recorder, and Nov. 1, 1934, to Nov. 10, 1941, nonrecording gages, on right bank at same datum.

REMARKS.--Water discharge records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--52 years, 508 $ft^3/s$ (14.39 $m^3/s$),120.61 in/yr (3,063 mm/yr), 368,000 acre-ft/yr (454 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 $ft^3/s$ (765 $m^3/s$) Nov. 5, 1934, gage height, 14.4 ft (4.39 m), from high-water mark, from rating curve extended above 9,800 $ft^3/s$ (278 $m^3/s$) on basis of slope-area measurement at gage height 12.2 ft (3.72 m); minimum recorded, 16 $ft^3/s$ (0.453 $m^3/s$) Sept. 23, 1930, gage height, 1.12 ft (0.341 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,200 $ft^3/s$ (90.6 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 9 | 1300 | 3,520 | 99.7 | 5.92 | 1.804 | Dec. 3 | 2200 | *9,590 | 272 | *8.80 | 2.682 |
| Oct. 17 | 0730 | 5,550 | 157 | 7.10 | 2.164 | Dec. 26 | 0900 | 6,950 | 197 | 7.76 | 2.365 |
| Nov. 15 | 0145 | 8,120 | 230 | 8.25 | 2.515 | | | | | | |

Minimum discharge, 87 $ft^3/s$ (2.46 $m^3/s$) Sept. 30, gage height, 1.68 ft (0.512 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 117 | 1250 | 1270 | 688 | 520 | 242 | 268 | 951 | 460 | 590 | 309 | 158 |
| 2 | 115 | 1470 | 3570 | 605 | 495 | 226 | 251 | 1360 | 418 | 535 | 295 | 150 |
| 3 | 540 | 2040 | 4810 | 575 | 460 | 214 | 245 | 937 | 396 | 560 | 317 | 143 |
| 4 | 565 | 1940 | 3740 | 881 | 413 | 202 | 264 | 772 | 379 | 790 | 302 | 140 |
| 5 | 832 | 2000 | 1650 | 772 | 379 | 193 | 313 | 682 | 387 | 706 | 285 | 150 |
| 6 | 540 | 1540 | 1170 | 616 | 358 | 188 | 396 | 622 | 446 | 748 | 278 | 140 |
| 7 | 347 | 1360 | 972 | 585 | 339 | 185 | 396 | 748 | 525 | 797 | 285 | 128 |
| 8 | 490 | 1100 | 930 | 605 | 335 | 179 | 600 | 1100 | 605 | 1260 | 268 | 119 |
| 9 | 2770 | 888 | 902 | 535 | 309 | 177 | 595 | 1240 | 676 | 736 | 258 | 115 |
| 10 | 1930 | 742 | 778 | 590 | 292 | 191 | 550 | 1260 | 694 | 595 | 251 | 113 |
| 11 | 1010 | 664 | 688 | 694 | 387 | 185 | 712 | 1030 | 646 | 565 | 255 | 113 |
| 12 | 676 | 628 | 610 | 550 | 565 | 179 | 622 | 839 | 670 | 545 | 251 | 110 |
| 13 | 530 | 1040 | 570 | 475 | 510 | 174 | 530 | 930 | 540 | 520 | 255 | 108 |
| 14 | 585 | 3600 | 525 | 846 | 535 | 168 | 480 | 839 | 515 | 510 | 281 | 158 |
| 15 | 670 | 3750 | 515 | 2150 | 475 | 166 | 432 | 748 | 730 | 550 | 302 | 138 |
| 16 | 993 | 1560 | 460 | 1840 | 590 | 177 | 374 | 790 | 839 | 610 | 306 | 121 |
| 17 | 4650 | 1090 | 432 | 1180 | 525 | 358 | 350 | 742 | 797 | 610 | 242 | 117 |
| 18 | 1920 | 888 | 418 | 902 | 475 | 754 | 320 | 646 | 958 | 555 | 211 | 110 |
| 19 | 1690 | 760 | 409 | 736 | 404 | 520 | 309 | 605 | 972 | 505 | 217 | 110 |
| 20 | 1130 | 676 | 391 | 634 | 350 | 396 | 327 | 570 | 811 | 515 | 242 | 113 |
| 21 | 909 | 622 | 379 | 575 | 320 | 339 | 306 | 570 | 718 | 455 | 211 | 113 |
| 22 | 742 | 646 | 391 | 565 | 317 | 455 | 288 | 595 | 658 | 396 | 199 | 113 |
| 23 | 634 | 1000 | 500 | 530 | 470 | 391 | 285 | 595 | 605 | 418 | 191 | 108 |
| 24 | 575 | 1250 | 1180 | 475 | 391 | 370 | 335 | 700 | 595 | 455 | 205 | 102 |
| 25 | 811 | 958 | 1110 | 436 | 350 | 339 | 313 | 712 | 545 | 446 | 196 | 98 |
| 26 | 790 | 1090 | 4370 | 545 | 320 | 317 | 299 | 622 | 510 | 432 | 188 | 96 |
| 27 | 784 | 846 | 1720 | 1500 | 302 | 292 | 317 | 797 | 535 | 383 | 182 | 96 |
| 28 | 736 | 700 | 1120 | 860 | 278 | 271 | 379 | 652 | 616 | 370 | 188 | 95 |
| 29 | 1800 | 605 | 1200 | 718 | 261 | 248 | 446 | 575 | 694 | 383 | 179 | 91 |
| 30 | 1900 | 688 | 1040 | 610 | --- | 258 | 640 | 505 | 610 | 335 | 177 | 89 |
| 31 | 1070 | --- | 811 | 555 | --- | 299 | --- | 490 | --- | 317 | 166 | --- |
| TOTAL | 32851 | 37451 | 38631 | 23828 | 11725 | 8653 | 11942 | 24224 | 18550 | 17192 | 7492 | 3555 |
| MEAN | 1060 | 1248 | 1246 | 769 | 404 | 279 | 398 | 781 | 618 | 555 | 242 | 119 |
| MAX | 4650 | 3750 | 4810 | 2150 | 590 | 754 | 712 | 1360 | 972 | 1260 | 317 | 158 |
| MIN | 115 | 605 | 379 | 436 | 261 | 166 | 245 | 490 | 379 | 317 | 166 | 89 |
| CFSM | 18.5 | 21.8 | 21.8 | 13.4 | 7.06 | 4.88 | 6.96 | 13.7 | 10.8 | 9.70 | 4.23 | 2.08 |
| IN. | 21.36 | 24.36 | 25.12 | 15.50 | 7.63 | 5.63 | 7.77 | 15.75 | 12.06 | 11.18 | 4.87 | 2.31 |
| AC-FT | 65160 | 74280 | 76620 | 47260 | 23260 | 17160 | 23690 | 48050 | 36790 | 34100 | 14860 | 7050 |

CAL YR 1975 TOTAL 234911 MEAN 644 MAX 4810 MIN 115 CFSM 11.3 IN 152.77 AC-FT 465900
WTR YR 1976 TOTAL 236094 MEAN 645 MAX 4810 MIN 89 CFSM 11.3 IN 153.54 AC-FT 468300

## 12056500 NORTH FORK SKOKOMISH RIVER BELOW STAIRCASE RAPIDS NEAR HOODSPORT, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: April 1965 to current year.

INSTRUMENTATION.--Temperature recorder since April 1965.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 14.5°C Aug. 23, 1976; minimum (1965-67, 1968-76), 0.0°C Mar. 24, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 14.5°C Aug. 23; minimum, 0.0°C Mar. 24.

WATER QUALITY DATA DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 20... | 1135 | 2870 | 48 | 7.0 | 4.0 | 4 | 12.8 | 125 |
| FEB , 1974 | | | | | | | | |
| 22... | 0915 | 404 | 80 | 7.2 | 3.4 | 1 | 13.3 | 2 |
| JUN | | | | | | | | |
| 20... | 0840 | 1450 | 54 | 7.2 | 5.4 | 1 | 12.5 | 6 |
| SEP | | | | | | | | |
| 19... | 0815 | 146 | 86 | 7.6 | 9.2 | 0 | 10.8 | 71 |
| DEC | | | | | | | | |
| 12... | 0835 | *700 | 80 | 7.2 | 4.5 | 1 | 12.3 | 2 |
| MAR , 1975 | | | | | | | | |
| 07... | 0815 | 485 | 90 | 7.1 | 3.0 | 0 | 13.3 | 6 |
| MAY | | | | | | | | |
| 09... | 1220 | 652 | 66 | 7.7 | 5.2 | 0 | 12.6 | 3 |
| AUG | | | | | | | | |
| 05... | 1210 | 229 | 84 | 6.0 | 10.9 | 0 | 11.1 | 2 |
| NOV | | | | | | | | |
| 21... | 1040 | 628 | 76 | 6.9 | 4.2 | 0 | 13.5 | 9 |
| DEC | | | | | | | | |
| 04... | 1130 | 3300 | -- | -- | 4.2 | 6 | 13.0 | -- |
| FEB , 1976 | | | | | | | | |
| 20... | 1045 | 350 | 77 | 7.5 | 3.2 | 0 | 13.8 | 3 |
| MAY | | | | | | | | |
| 20... | 0845 | 570 | 70 | 6.9 | 4.4 | 0 | 12.9 | 4 |
| SEP | | | | | | | | |
| 23... | 0825 | 110 | 88 | 7.4 | 9.5 | 0 | 11.0 | 4 |

* Mean daily discharge.

| DATE | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | |
| 20... | .00 | .01 | .01 | .04 | .09 | .03 | .01 |
| FEB , 1974 | | | | | | | |
| 22... | .02 | .00 | .02 | .02 | .08 | .01 | .00 |
| JUN | | | | | | | |
| 20... | -- | -- | .03 | -- | -- | .01 | -- |
| SEP | | | | | | | |
| 19... | -- | -- | .02 | -- | -- | .01 | -- |
| DEC | | | | | | | |
| 12... | -- | -- | .04 | -- | -- | .01 | -- |
| MAR , 1975 | | | | | | | |
| 07... | -- | -- | .04 | -- | -- | .00 | -- |
| MAY | | | | | | | |
| 09... | -- | -- | .76 | -- | -- | .01 | -- |
| AUG | | | | | | | |
| 05... | -- | -- | .02 | -- | -- | .00 | -- |
| NOV | | | | | | | |
| 21... | -- | -- | .02 | -- | -- | .00 | -- |
| DEC | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- |
| FEB , 1976 | | | | | | | |
| 20... | -- | -- | .02 | -- | -- | .01 | -- |
| MAY | | | | | | | |
| 20... | -- | -- | .03 | -- | -- | .00 | -- |
| SEP | | | | | | | |
| 23... | -- | -- | .01 | -- | -- | .01 | -- |

12056500 NORTH FORK SKOKOMISH RIVER BELOW STAIRCASE RAPIDS NEAR HOODSPORT, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | | | | --- | --- | --- | 4.0 | 3.5 | 4.0 | --- | --- | --- |
| 2 | | | | --- | --- | --- | 4.5 | 4.0 | 4.0 | --- | --- | --- |
| 3 | | | | --- | --- | --- | 4.5 | 4.5 | 4.5 | --- | --- | --- |
| 4 | | | | --- | --- | --- | 4.5 | 4.0 | 4.0 | --- | --- | --- |
| 5 | | | | --- | --- | --- | 4.0 | 3.5 | 3.5 | --- | --- | --- |
| 6 | | | | --- | --- | --- | 4.0 | 3.0 | 3.5 | --- | --- | --- |
| 7 | | | | --- | --- | --- | 4.5 | 4.0 | 4.0 | --- | --- | --- |
| 8 | | | | --- | --- | --- | 5.0 | 4.5 | 5.0 | --- | --- | --- |
| 9 | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | | | | --- | --- | --- | --- | --- | --- | 3.5 | 3.0 | 3.5 |
| 16 | | | | --- | --- | --- | --- | --- | --- | 4.0 | 3.5 | 4.0 |
| 17 | | | | --- | --- | --- | --- | --- | --- | 4.5 | 4.0 | 4.0 |
| 18 | | | | 3.5 | 3.0 | 3.5 | --- | --- | --- | 4.0 | 4.0 | 4.0 |
| 19 | | | | 4.0 | 3.0 | 3.5 | --- | --- | --- | 4.0 | 3.5 | 4.0 |
| 20 | | | | 4.0 | 4.0 | 4.0 | --- | --- | --- | 4.0 | 3.5 | 4.0 |
| 21 | | | | 4.5 | 4.0 | 4.5 | --- | --- | --- | 4.0 | 4.0 | 4.0 |
| 22 | | | | 4.5 | 4.0 | 4.0 | --- | --- | --- | 4.5 | 4.0 | 4.5 |
| 23 | | | | 4.5 | 4.0 | 4.0 | --- | --- | --- | 4.0 | 3.5 | 3.5 |
| 24 | | | | 5.0 | 4.5 | 4.5 | --- | --- | --- | 3.5 | 3.0 | 3.5 |
| 25 | | | | 5.0 | 4.5 | 4.5 | --- | --- | --- | 3.5 | 3.0 | 3.5 |
| 26 | | | | 5.0 | 4.5 | 4.5 | --- | --- | --- | 4.0 | 3.5 | 3.5 |
| 27 | | | | 4.5 | 3.5 | 4.0 | --- | --- | --- | 4.0 | 3.5 | 4.0 |
| 28 | | | | 3.5 | 3.0 | 3.0 | --- | --- | --- | 4.5 | 4.0 | 4.0 |
| 29 | | | | 3.0 | 2.5 | 2.5 | --- | --- | --- | 4.5 | 4.0 | 4.0 |
| 30 | | | | 3.5 | 2.0 | 3.0 | --- | --- | --- | 4.5 | 4.0 | 4.0 |
| 31 | | | | --- | --- | --- | --- | --- | --- | 4.0 | 3.5 | 4.0 |
| MONTH | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- |

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 4.0 | 4.0 | 4.0 | 2.5 | 2.0 | 2.0 | 4.0 | 2.5 | 3.0 | 6.0 | 3.5 | 4.5 |
| 2 | 4.0 | 3.5 | 4.0 | 3.0 | 2.0 | 2.5 | 4.5 | 3.0 | 3.5 | 4.5 | 3.5 | 4.0 |
| 3 | 3.5 | 3.5 | 3.5 | 2.5 | 2.0 | 2.5 | 4.5 | 3.0 | 4.0 | 6.0 | 4.0 | 4.5 |
| 4 | 3.0 | 2.0 | 2.5 | 3.0 | 2.0 | 2.5 | 4.5 | 3.0 | 4.0 | 5.0 | 4.0 | 4.5 |
| 5 | 2.0 | 2.0 | 2.0 | 3.0 | 2.0 | 2.5 | 4.5 | 3.0 | 3.5 | 6.0 | 4.0 | 4.5 |
| 6 | 2.5 | 2.0 | 2.5 | 3.5 | 2.5 | 2.5 | 4.5 | 3.5 | 4.0 | 6.5 | 4.0 | 5.0 |
| 7 | 3.5 | 2.5 | 3.0 | 3.5 | 3.0 | 3.0 | 4.0 | 3.0 | 3.5 | 7.0 | 4.0 | 5.0 |
| 8 | 4.0 | 3.0 | 3.5 | 4.0 | 3.0 | 3.0 | 4.0 | 3.5 | 3.5 | 6.5 | 4.0 | 5.0 |
| 9 | 3.5 | 3.0 | 3.5 | 3.5 | 3.0 | 3.0 | 4.5 | 3.5 | 4.0 | 6.5 | 4.0 | 5.0 |
| 10 | 4.0 | 3.5 | 3.5 | 4.0 | 3.0 | 3.5 | 5.0 | 3.5 | 4.0 | 5.0 | 4.0 | 4.5 |
| 11 | 4.0 | 3.5 | 3.5 | 3.5 | 2.5 | 3.0 | 4.5 | 3.5 | 4.0 | 6.0 | 4.0 | 5.0 |
| 12 | 4.0 | 3.5 | 3.5 | 4.0 | 2.5 | 3.0 | 4.5 | 3.5 | 4.0 | 6.5 | 4.5 | 5.5 |
| 13 | 4.0 | 3.5 | 3.5 | 3.5 | 3.0 | 3.0 | 5.0 | 3.5 | 4.0 | 6.0 | 4.5 | 5.0 |
| 14 | 3.0 | 3.0 | 3.0 | 4.0 | 2.5 | 3.5 | 4.0 | 3.5 | 4.0 | 6.5 | 4.0 | 5.0 |
| 15 | 4.0 | 3.0 | 3.5 | 4.0 | 3.0 | 3.5 | 5.0 | 3.0 | 4.0 | 7.0 | 4.0 | 5.5 |
| 16 | 4.0 | 3.0 | 3.5 | 4.0 | 3.5 | 3.5 | 4.5 | 3.0 | 4.0 | 6.5 | 4.5 | 5.0 |
| 17 | 3.5 | 2.0 | 3.0 | 3.5 | 3.0 | 3.5 | 4.5 | 3.5 | 4.0 | 6.0 | 4.0 | 5.0 |
| 18 | 3.5 | 2.5 | 3.0 | 3.0 | 2.5 | 3.0 | 5.0 | 3.5 | 4.0 | 6.5 | 4.0 | 5.0 |
| 19 | 4.0 | 3.0 | 3.5 | 4.0 | 3.0 | 3.5 | 5.0 | 4.0 | 4.5 | 5.5 | 4.5 | 5.0 |
| 20 | 3.5 | 3.0 | 3.5 | 3.5 | 2.5 | 3.0 | 5.0 | 4.0 | 4.5 | 6.0 | 4.5 | 5.5 |
| 21 | 4.0 | 3.0 | 3.5 | 4.0 | 3.0 | 3.5 | 5.0 | 3.5 | 4.0 | 6.5 | 4.5 | 5.5 |
| 22 | 4.0 | 3.5 | 4.0 | 4.0 | 3.0 | 3.5 | 4.5 | 3.5 | 4.0 | 6.5 | 4.5 | 5.5 |
| 23 | 3.5 | 3.0 | 3.5 | 3.0 | 1.0 | 2.5 | 4.0 | 3.5 | 4.0 | 6.0 | 5.0 | 5.5 |
| 24 | 3.0 | 2.5 | 3.0 | 2.0 | 0.0 | 1.0 | 5.0 | 3.5 | 4.0 | 5.5 | 4.5 | 5.0 |
| 25 | 3.0 | 2.0 | 2.5 | 3.5 | 2.0 | 3.0 | 5.0 | 3.5 | 4.0 | 5.5 | 4.0 | 4.5 |
| 26 | 2.5 | 1.5 | 2.0 | 2.5 | 1.5 | 2.0 | 5.5 | 3.5 | 4.5 | 6.5 | 4.5 | 5.5 |
| 27 | 2.0 | 0.5 | 1.5 | 3.5 | 2.0 | 3.0 | 6.0 | 3.5 | 4.5 | 6.0 | 4.5 | 5.5 |
| 28 | 2.5 | 1.5 | 2.0 | 4.0 | 3.0 | 3.5 | 5.5 | 4.0 | 4.5 | 5.0 | 4.0 | 4.5 |
| 29 | 2.5 | 1.5 | 2.0 | 4.0 | 3.0 | 3.5 | 6.0 | 4.0 | 5.0 | 4.5 | 4.0 | 4.5 |
| 30 | --- | --- | --- | 4.0 | 3.5 | 3.5 | 6.0 | 4.0 | 5.0 | 5.0 | 3.5 | 4.5 |
| 31 | --- | --- | --- | 4.0 | 3.0 | 3.5 | --- | --- | --- | 5.5 | 4.5 | 4.5 |
| MONTH | 4.0 | 0.5 | 3.0 | 4.0 | 0.0 | 3.0 | 6.0 | 2.5 | 4.0 | 7.0 | 3.5 | 5.0 |

## 12056500 NORTH FORK SKOKOMISH RIVER BELOW STAIRCASE RAPIDS NEAR HOODSPORT, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 5.5 | 4.0 | 5.0 | 7.5 | 6.0 | 6.5 | 9.5 | 9.0 | 9.0 | 10.5 | 9.0 | 9.5 |
| 2 | 6.0 | 4.0 | 5.0 | 8.0 | 5.5 | 7.0 | 10.5 | 9.0 | 9.5 | 11.0 | 9.0 | 10.0 |
| 3 | 5.5 | 4.0 | 5.0 | 7.0 | 6.5 | 6.5 | 10.5 | 9.5 | 10.0 | 10.5 | 9.0 | 9.5 |
| 4 | 6.0 | 4.5 | 5.0 | 7.5 | 6.0 | 6.5 | 10.5 | 9.5 | 10.0 | 10.5 | 9.5 | 10.0 |
| 5 | 7.5 | 4.5 | 6.0 | 9.0 | 6.0 | 7.5 | 10.0 | 9.5 | 9.5 | 10.0 | 9.0 | 9.5 |
| 6 | 7.5 | 5.0 | 6.0 | 8.5 | 7.0 | 7.5 | 11.0 | 9.5 | 10.0 | 10.0 | 8.5 | 9.0 |
| 7 | 7.0 | 5.0 | 6.0 | 7.5 | 7.0 | 7.0 | 10.0 | 9.5 | 9.5 | 10.0 | 8.0 | 8.5 |
| 8 | 7.0 | 5.0 | 6.0 | 7.0 | 6.0 | 6.5 | 10.0 | 9.0 | 9.5 | 9.5 | 7.5 | 8.5 |
| 9 | 7.5 | 5.0 | 6.0 | 7.0 | 6.0 | 6.5 | 10.0 | 9.0 | 9.5 | 9.5 | 7.5 | 8.5 |
| 10 | 7.5 | 5.5 | 6.0 | 8.0 | 6.0 | 7.0 | 11.5 | 9.5 | 10.0 | 10.0 | 8.0 | 9.0 |
| 11 | 5.5 | 5.0 | 5.5 | 8.0 | 6.5 | 7.5 | 11.5 | 9.5 | 10.5 | 10.0 | 8.5 | 9.0 |
| 12 | 6.0 | 5.0 | 5.5 | 8.5 | 6.5 | 7.5 | 12.0 | 10.0 | 11.0 | 9.5 | 9.0 | 9.0 |
| 13 | 7.0 | 4.0 | 5.5 | 8.5 | 6.5 | 7.5 | 10.5 | 9.5 | 10.0 | 10.0 | 8.5 | 9.0 |
| 14 | 7.5 | 5.0 | 6.0 | 9.5 | 6.5 | 8.0 | 9.5 | 9.0 | 9.5 | 9.5 | 9.0 | 9.5 |
| 15 | 6.5 | 5.5 | 6.0 | 10.0 | 7.0 | 8.5 | 9.5 | 9.0 | 9.0 | 10.0 | 8.5 | 9.0 |
| 16 | 6.5 | 5.0 | 5.5 | 10.5 | 7.5 | 9.0 | 9.5 | 8.5 | 9.0 | 10.0 | 8.5 | 9.0 |
| 17 | 8.5 | 5.0 | 6.5 | 10.0 | 8.0 | 9.0 | 9.5 | 8.0 | 9.0 | 9.5 | 9.0 | 9.5 |
| 18 | 8.0 | 5.5 | 6.5 | 10.0 | 8.0 | 9.0 | 11.0 | 8.0 | 9.0 | 10.0 | 9.0 | 9.5 |
| 19 | 8.0 | 5.5 | 6.5 | 10.0 | 8.0 | 9.0 | 9.0 | 9.0 | 9.0 | 10.5 | 9.0 | 9.5 |
| 20 | 8.0 | 5.5 | 6.5 | 9.5 | 8.5 | 9.0 | 11.0 | 8.5 | 9.5 | 10.5 | 9.5 | 10.0 |
| 21 | 8.0 | 5.5 | 6.5 | 8.5 | 7.5 | 6.0 | 11.5 | 9.0 | 9.5 | 11.0 | 9.5 | 10.0 |
| 22 | 7.5 | 5.0 | 6.0 | 8.5 | 7.5 | 8.0 | 10.5 | 9.0 | 9.5 | 10.0 | 9.5 | 10.0 |
| 23 | 7.5 | 5.5 | 6.5 | 10.5 | 8.0 | 9.5 | 14.5 | 9.0 | 10.0 | 10.0 | 9.5 | 10.0 |
| 24 | 7.0 | 5.5 | 6.5 | 10.5 | 9.0 | 9.5 | 10.0 | 8.5 | 9.0 | 10.5 | 9.0 | 9.5 |
| 25 | 7.5 | 5.0 | 6.0 | 11.0 | 9.0 | 10.0 | 10.0 | 8.5 | 9.0 | 10.5 | 9.0 | 9.5 |
| 26 | 8.0 | 5.5 | 6.5 | 11.5 | 9.0 | 11.0 | 9.0 | 8.0 | 8.5 | 10.5 | 9.0 | 9.5 |
| 27 | 8.5 | 5.5 | 7.0 | 10.5 | 8.5 | 9.5 | 9.0 | 8.5 | 8.5 | 10.5 | 9.5 | 10.0 |
| 28 | 8.5 | 6.0 | 7.5 | 10.5 | 8.5 | 10.0 | 10.5 | 8.5 | 9.5 | 11.0 | 9.5 | 10.0 |
| 29 | 7.5 | 6.5 | 7.0 | 10.5 | 9.5 | 10.0 | 11.0 | 9.0 | 9.5 | 11.0 | 9.5 | 10.0 |
| 30 | 6.5 | 5.5 | 6.0 | 10.0 | 9.0 | 9.5 | 11.0 | 9.0 | 10.0 | 10.5 | 9.5 | 10.0 |
| 31 | --- | --- | --- | 10.5 | 8.5 | 9.5 | 10.5 | 9.0 | 10.0 | --- | --- | --- |
| MONTH | 8.5 | 4.0 | 6.0 | 11.5 | 5.5 | 8.5 | 14.5 | 8.0 | 9.5 | 11.0 | 7.5 | 9.5 |
| YEAR | 14.5 | 0.0 | 6.0 | | | | | | | | | |

## 12057000 LAKE CUSHMAN RESERVOIR NEAR HOODSPORT, WA

LOCATION.--Lat47°25'25", long 123°13'20", in NE¼SW¼ sec.5, T.22 N., R.4 W., Mason County, Hydrologic Unit 17110017, on upstream face of Cushman Dam No. 1, 4 mi (6.4 km) northwest of Hoodsport.

DRAINAGE AREA.--93.7 $mi^2$ (242.7 $km^2$).

PERIOD OF RECORD.--Water years 1974 to current year.

### WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | SAMP- LING DEPTH (FT) | SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) | PH (UNITS) | TEMPER- ATURE (DEG C) | TUR- BID- ITY (JTU) | DIS- SOLVED OXYGEN (MG/L) | IMME- DIATE COLI- FORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 20... | 1145 | 1.0 | 61 | 7.0 | 7.0 | 1 | 10.9 | 36 |
| 20... | 1150 | 20 | 60 | 7.2 | 7.0 | 1 | 10.6 | 37 |
| 20... | 1155 | 50 | 60 | 7.3 | 6.9 | 1 | 10.7 | 16 |
| 20... | 1200 | 100 | 60 | 7.3 | 7.0 | 1 | 10.7 | 20 |
| 20... | 1205 | 200 | 60 | 6.8 | 5.8 | 7 | 7.0 | 9 |
| FEB , 1974 | | | | | | | | |
| 22... | 1205 | 1.0 | 55 | 7.1 | 4.6 | 1 | 12.2 | 4 |
| 22... | 1210 | 20 | 55 | 7.1 | 4.4 | 1 | 12.0 | 2 |
| 22... | 1215 | 50 | 55 | 7.2 | 4.4 | 8 | 12.0 | 5 |
| 22... | 1220 | 100 | 55 | 7.2 | 4.4 | 10 | 12.1 | 2 |
| 22... | 1225 | 220 | 52 | 7.1 | 4.4 | 20 | 12.1 | -- |
| JUN | | | | | | | | |
| 20... | 1015 | 1.0 | 58 | 6.9 | 15.7 | 0 | 10.2 | 1 |
| 20... | 1020 | 20 | 61 | 7.0 | 14.0 | 1 | 10.7 | 3 |
| 20... | 1025 | 50 | 60 | 7.0 | 11.0 | 1 | 11.2 | <1 |
| 20... | 1030 | 100 | 60 | 6.8 | 7.2 | 0 | 11.1 | <1 |
| 20... | 1035 | 230 | 61 | 7.0 | 5.1 | 5 | 10.3 | <1 |
| SEP | | | | | | | | |
| 19... | 1000 | 1.0 | 59 | 7.6 | 18.6 | 0 | 9.0 | 34 |
| 19... | 1005 | 20 | 59 | 7.8 | 18.3 | 0 | 8.8 | 67 |
| 19... | 1010 | 50 | 60 | 7.6 | 14.4 | 0 | 10.1 | 44 |
| 19... | 1015 | 100 | 64 | 7.6 | 9.2 | 0 | 10.1 | 20 |
| DEC | | | | | | | | |
| 12... | 1000 | 1.0 | 68 | 7.2 | 8.4 | 0 | 10.3 | 4 |
| 12... | 1005 | 20 | 64 | 7.3 | 8.6 | 0 | 10.1 | 4 |
| 12... | 1010 | 50 | 62 | 7.4 | 8.6 | 0 | 10.0 | <1 |
| 12... | 1015 | 100 | 60 | 7.1 | 8.4 | 1 | 9.6 | 4 |
| MAR , 1975 | | | | | | | | |
| 07... | 0945 | 1.0 | 65 | 7.2 | 5.4 | 0 | 12.0 | 1 |
| 07... | 0950 | 20 | 65 | 7.2 | 5.4 | 0 | 12.0 | <1 |
| 07... | 0955 | 50 | 65 | 7.2 | 5.4 | 0 | 12.0 | <1 |
| 07... | 1000 | 100 | 65 | 7.1 | 5.4 | 0 | 12.0 | <1 |
| MAY | | | | | | | | |
| 09... | 1105 | 1.0 | 52 | 7.2 | 12.5 | 0 | 11.3 | <1 |
| 09... | 1110 | 20 | 50 | 7.5 | 10.2 | 0 | 11.7 | <1 |
| 09... | 1115 | 50 | 53 | 7.7 | 8.3 | 0 | 12.0 | 2 |
| 09... | 1120 | 100 | 59 | 7.7 | 5.6 | 0 | 11.7 | <1 |
| AUG | | | | | | | | |
| 05... | 1105 | 1.0 | 60 | 6.0 | 17.7 | 0 | 9.4 | <1 |
| 05... | 1110 | 20 | 60 | 6.5 | 17.7 | 0 | 10.5 | 2 |

## 12057000 LAKE CUSHMAN RESERVOIR NEAR HOODSPORT, WA--Continued

### WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | |
| 20... | .74 | .00 | .74 | .03 | .06 | .01 | .00 |
| 20... | .09 | .00 | .09 | .03 | .09 | .02 | .00 |
| 20... | .03 | .00 | .03 | .05 | .13 | .01 | .00 |
| 20... | .03 | .01 | .04 | .03 | .16 | .00 | .00 |
| 20... | .05 | .01 | .06 | .03 | .12 | .05 | .00 |
| FEB , 1974 | | | | | | | |
| 22... | .04 | .00 | .04 | .05 | .28 | .01 | .00 |
| 22... | .06 | .00 | .06 | .02 | .06 | .02 | .00 |
| 22... | .04 | .00 | .04 | .03 | .37 | .01 | .00 |
| 22... | .03 | .00 | .03 | .02 | .09 | .01 | .00 |
| 22... | .06 | .00 | .06 | .06 | .08 | .62 | .01 |
| JUN | | | | | | | |
| 20... | .00 | .00 | .00 | .01 | .09 | 1.4 | 1.4 |
| 20... | .00 | .00 | .00 | .02 | .07 | .01 | .00 |
| 20... | .00 | .00 | .00 | .01 | .09 | .90 | .90 |
| 20... | .02 | .00 | .02 | .01 | .05 | .00 | .00 |
| 20... | .04 | .00 | .04 | .01 | .12 | 2.8 | 2.8 |
| SEP | | | | | | | |
| 19... | -- | -- | .02 | -- | -- | .01 | -- |
| 19... | -- | -- | .01 | -- | -- | .00 | -- |
| 19... | -- | -- | .01 | -- | -- | .01 | -- |
| 19... | -- | -- | .09 | -- | -- | .00 | -- |
| DEC | | | | | | | |
| 12... | -- | -- | .02 | -- | -- | .01 | -- |
| 12... | -- | -- | .03 | -- | -- | .01 | -- |
| 12... | -- | -- | .02 | -- | -- | .01 | -- |
| 12... | -- | -- | .03 | -- | -- | .01 | -- |
| MAR , 1975 | | | | | | | |
| 07... | -- | -- | .02 | -- | -- | .00 | -- |
| 07... | -- | -- | .07 | -- | -- | .02 | -- |
| 07... | -- | -- | .03 | -- | -- | .00 | -- |
| 07... | -- | -- | .02 | -- | -- | .00 | -- |
| MAY | | | | | | | |
| 09... | -- | -- | .03 | -- | -- | .00 | -- |
| 09... | -- | -- | .03 | -- | -- | .01 | -- |
| 09... | -- | -- | .08 | -- | -- | .01 | -- |
| 09... | -- | -- | .02 | -- | -- | .02 | -- |
| AUG | | | | | | | |
| 05... | -- | -- | .01 | -- | -- | .01 | -- |
| 05... | -- | -- | .02 | -- | -- | .01 | -- |

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| AUG , 1975 | | | | | | | | | | |
| 05... | 1115 | 50 | 61 | 6.9 | 13.7 | 0 | 11.4 | <1 | .01 | .01 |
| 05... | 1120 | 100 | 66 | 7.0 | 7.1 | 0 | 10.6 | <1 | .01 | .00 |
| NOV | | | | | | | | | | |
| 21... | 1030 | 1.0 | 63 | 6.9 | 8.5 | 0 | 11.7 | 6 | .02 | .00 |
| 21... | 1035 | 20 | 52 | 7.0 | 8.5 | 0 | 11.0 | 10 | .02 | .00 |
| 21... | 1040 | 50 | 52 | 7.2 | 8.5 | 0 | 10.9 | 7 | .01 | .00 |
| 21... | 1045 | 100 | 52 | 7.2 | 8.5 | 0 | 11.1 | 4 | .01 | .00 |
| DEC | | | | | | | | | | |
| 04... | 1225 | 1.0 | -- | -- | 7.8 | 0 | 11.2 | -- | -- | -- |
| FEB , 1976 | | | | | | | | | | |
| 20... | 1040 | 1.0 | 48 | 7.6 | 5.1 | 0 | 12.0 | 1 | .02 | .01 |
| 20... | 1050 | 20 | 48 | 7.6 | 4.9 | 0 | 12.0 | 1 | .24 | .04 |
| 20... | 1100 | 50 | 49 | 7.6 | 4.8 | 0 | 12.0 | 2 | .03 | .01 |
| 20... | 1110 | 100 | 48 | 7.4 | 4.8 | 0 | 12.0 | <1 | .02 | .00 |
| MAY | | | | | | | | | | |
| 20... | 1015 | 1.0 | 51 | 7.2 | 11.1 | 0 | 11.2 | <1 | .02 | .01 |
| 20... | 1025 | 20 | 53 | 7.3 | 10.3 | 0 | 11.3 | 1 | .01 | .00 |
| 20... | 1035 | 50 | 53 | 6.9 | 9.9 | 0 | 11.7 | 120 | .01 | .01 |
| 20... | 1045 | 100 | 55 | 7.1 | 6.4 | 0 | 11.8 | 1 | .01 | .00 |
| SEP | | | | | | | | | | |
| 23... | 0945 | 1.0 | 60 | 7.5 | 16.8 | 0 | 9.5 | <1 | .00 | .00 |
| 23... | 0950 | 20 | 60 | 7.7 | 16.9 | 0 | 9.5 | 2 | .00 | .00 |
| 23... | 0955 | 50 | 60 | 7.8 | 14.4 | 0 | 11.0 | <1 | .00 | .00 |
| 23... | 1000 | 100 | 60 | 7.5 | 7.6 | 0 | 10.2 | 1 | .00 | .04 |

## 12057500 NORTH FORK SKOKOMISH RIVER NEAR HOODSPORT, WA

LOCATION.--Lat 47°25'24", long 123°13'16", in NE¼SW¼ sec.5, T.22 N., R.4 W., Mason County, Hydrologic Unit 17110017, on Lake Cushman at city of Tacoma dam, 4 mi (6.4 km) northwest of Hoodsport.

DRAINAGE AREA.--93.7 mi² (242.7 km²).

PERIOD OF RECORD.--August 1910 to September 1911 (fragmentary) and February 1913 to current year (monthly discharge only). Records of estimated monthly discharge only October 1911 to January 1913 in files of Tacoma district office.

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Discharge determined from record of power output and Lake Cushman elevations, plus spillway discharge when present. Prior to Sept. 23, 1911, nonrecording gage and February 1913 to September 1923, water-stage recorder, at approximately same site, at datum 486.4 ft (148.25 m) above mean sea level prior to Sept. 2, 1918, and at datum 5.00 ft (1.524 m) higher Sept. 2, 1918, to September 1923, levels by city of Tacoma. October 1923 to September 1930 water-stage recorder 1 mi (1.6 km) downstream at different datum.

REMARKS.--Records fair. No diversion of consequence. Flow regulated in Lake Cushman since October 1925 for power by city of Tacoma.

COOPERATION.--Records of power output, spill, and elevations of Lake Cushman furnished by city of Tacoma.

AVERAGE DISCHARGE.--65 years (water years 1912-76), 764 ft³/s (21.64 m³/s), 110.73 in/yr (2,813 mm/yr) 553,500 acre-ft/yr 682 hm³/yr), adjusted for storage.

EXTREMES.--Not determined since regulation began in Lake Cushman.

MONTHLY DISCHARGE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Month | Observed | | | | Change in contents in Lake Cushman (acre-feet) | Adjusted for change in reservoir contents | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Maximum (cfs) | Minimum (cfs) | Mean (cfs) | Runoff in acre-feet | | Mean (cfs) | Per square mile | Runoff in inches | Runoff in acre-feet |
| October................ | 2,300 | 696 | 1,367 | 84,050 | +21,750 | 1,720 | 18.4 | 21.17 | 105,800 |
| November............... | *4,230 | 1,420 | *2,215 | *131,800 | -14,430 | *1,973 | *21.1 | *23.49 | *117,400 |
| December............... | *5,040 | 718 | *1,967 | *120,900 | -4,000 | *1,901 | *20.3 | *23.39 | *116,900 |
| CAL YR 1975......... | *5,040 | 0 | *891 | *644,800 | +57,100 | *969 | *10.3 | 140.45 | *701,900 |
| January................ | 2,270 | 218 | 1,386 | 85,240 | -8,000 | 1,256 | 13.4 | 15.46 | 77,240 |
| February............... | 2,230 | 361 | 1,675 | 96,380 | -49,100 | 822 | 8.77 | 9.46 | 47,280 |
| March.................. | 2,020 | 0 | 1,074 | 66,030 | -28,600 | 609 | 6.50 | 7.49 | 37,430 |
| April.................. | 1,060 | 106 | 472 | 28,090 | +9,880 | 638 | 6.81 | 7.60 | 37,970 |
| May.................... | 325 | 0 | 50.1 | 3,080 | +48,320 | 836 | 8.92 | 10.29 | 51,400 |
| June................... | 1,200 | 0 | 226 | 13,420 | +35,800 | 827 | 8.83 | 9.85 | 49,220 |
| July................... | 1,180 | 0 | 360 | 22,110 | +14,700 | 599 | 6.39 | 7.37 | 36,810 |
| August................. | 867 | 145 | 417 | 25,660 | -9,530 | 262 | 2.80 | 3.23 | 16,130 |
| September.............. | 1,040 | 84 | 543 | 32,300 | -22,270 | 169 | 1.80 | 2.01 | 10,030 |
| WTR YR 1976......... | *5,040 | 0 | *977 | *709,100 | -5,480 | *969 | *10.3 | *140.79 | *703,600 |

* Adjusted for spill.

## 12058600 LOWER LAKE CUSHMAN NEAR HOODSPORT, WA

LOCATION.--Lat 47°23'52", long 123°11'57", in SE¼NW¼ sec.16, T.22 N., R.4 W., Mason County, Hydrologic Unit 17110017. Samples taken at log boom, approximately 300 ft (91 m) upstream from dam.

DRAINAGE AREA.--99.2 mi² (256.9 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 20... | 1025 | 1.0 | 58 | 7.2 | 7.0 | 1 | 10.3 | 61 |
| 20... | 1030 | 20 | 60 | 7.2 | 6.9 | 1 | 10.0 | 28 |
| 20... | 1035 | 50 | 60 | 7.1 | 6.9 | 1 | -- | 44 |
| 20... | 1040 | 100 | 60 | 7.1 | 6.9 | 1 | 10.0 | 43 |
| 20... | 1045 | 140 | 64 | 6.7 | 6.2 | 5 | 4.6 | 91 |
| JAN , 1974 | | | | | | | | |
| 17... | 1040 | 1.0 | -- | -- | 5.0 | -- | 12.9 | -- |
| FEB | | | | | | | | |
| 22... | 1045 | 1.0 | 55 | 6.8 | 4.6 | 1 | 12.0 | 20 |
| 22... | 1050 | 20 | 55 | 7.0 | 4.4 | 1 | 12.1 | 14 |
| 22... | 1055 | 50 | 55 | 7.0 | 3.0 | 1 | 12.1 | 19 |
| 22... | 1100 | 100 | 55 | 7.0 | 3.0 | 1 | 12.1 | <1 |
| 22... | 1105 | 145 | 56 | 7.1 | 4.6 | 3 | 12.0 | 43 |
| JUN | | | | | | | | |
| 20... | 1205 | 1.0 | 61 | 7.3 | 10.2 | 1 | 10.9 | <1 |
| 20... | 1210 | 20 | 61 | 7.6 | 7.5 | 0 | 11.0 | 1 |
| 20... | 1215 | 50 | 60 | 7.7 | 7.2 | 0 | 11.0 | 10 |
| 20... | 1220 | 100 | 60 | 7.8 | 6.8 | 0 | 10.8 | 3 |
| 20... | 1225 | 120 | 61 | 7.8 | 6.6 | 3 | 10.8 | <1 |
| SEP | | | | | | | | |
| 19... | 1115 | 1.0 | 63 | 7.6 | 15.5 | 0 | 9.9 | 33 |
| 19... | 1120 | 20 | 66 | 7.6 | 9.0 | 0 | 9.6 | 25 |
| 19... | 1125 | 50 | 65 | 7.4 | 7.9 | 0 | 9.6 | 214 |
| 19... | 1130 | 100 | 65 | 7.4 | 6.5 | 0 | 9.2 | 3 |
| DEC | | | | | | | | |
| 12... | 1100 | 1.0 | 63 | 7.2 | 7.7 | 0 | 9.2 | 13 |
| 12... | 1105 | 20 | 63 | 7.2 | 7.9 | 1 | 9.3 | 11 |
| 12... | 1110 | 50 | 61 | 7.2 | 7.9 | 1 | 9.2 | 54 |
| 12... | 1115 | 100 | 65 | 7.2 | 7.9 | 1 | 9.1 | 57 |
| MAR , 1975 | | | | | | | | |
| 07... | 1050 | 1.0 | 65 | 7.0 | 6.0 | 0 | 11.9 | 2 |
| 07... | 1055 | 20 | 65 | 6.9 | 5.4 | 0 | 11.7 | 27 |
| 07... | 1100 | 50 | 67 | 7.0 | 5.0 | 0 | 11.7 | 7 |
| 07... | 1105 | 100 | 67 | 7.0 | 5.0 | 0 | 11.4 | <1 |
| MAY | | | | | | | | |
| 09... | 0950 | 1.0 | 51 | 7.0 | 12.8 | 0 | 11.5 | 1 |
| 09... | 0955 | 20 | 54 | 7.6 | 7.2 | 0 | 12.1 | 2 |
| 09... | 1000 | 50 | 56 | 7.5 | 6.1 | 0 | 11.8 | 8 |
| 09... | 1005 | 100 | 60 | 7.6 | 5.7 | 0 | 11.5 | 3 |
| AUG | | | | | | | | |
| 05... | 1320 | 1.0 | 67 | 6.2 | 14.4 | 0 | 10.3 | 4 |

12058600 LOWER LAKE CUSHMAN NEAR HOODSPORT, WA--Continued

WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | |
| 20... | .20 | .01 | .21 | .03 | .06 | .01 | .00 |
| 20... | .03 | .00 | .03 | .03 | .22 | .00 | .00 |
| 20... | .03 | .00 | .03 | .03 | .10 | .01 | .00 |
| 20... | .50 | .00 | .05 | .03 | .11 | .00 | .00 |
| 20... | .09 | .00 | .09 | .03 | .10 | .02 | .00 |
| JAN , 1974 | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | |
| 22... | .04 | .00 | .04 | .06 | .12 | .01 | .00 |
| 22... | .03 | .00 | .03 | .08 | .11 | .01 | .01 |
| 22... | .03 | .00 | .03 | .06 | .09 | .01 | .00 |
| 22... | .04 | .00 | .04 | .06 | .19 | .01 | .00 |
| 22... | .04 | .00 | .04 | .06 | .20 | .06 | .00 |
| JUN | | | | | | | |
| 20... | .01 | .00 | .01 | .02 | .05 | .01 | .00 |
| 20... | .01 | .00 | .01 | .01 | .05 | .00 | .00 |
| 20... | .02 | .00 | .02 | .01 | .06 | .01 | .00 |
| 20... | .02 | .00 | .02 | .00 | .04 | .02 | .01 |
| 20... | .02 | .00 | .02 | .01 | .20 | .01 | .00 |
| SEP | | | | | | | |
| 19... | -- | -- | .01 | -- | -- | .00 | -- |
| 19... | -- | -- | .02 | -- | -- | .00 | -- |
| 19... | -- | -- | .02 | -- | -- | .00 | -- |
| 19... | -- | -- | .03 | -- | -- | .00 | -- |
| DEC | | | | | | | |
| 12... | -- | -- | .06 | -- | -- | .01 | -- |
| 12... | -- | -- | .06 | -- | -- | .01 | -- |
| 12... | -- | -- | .05 | -- | -- | .01 | -- |
| 12... | -- | -- | .06 | -- | -- | .01 | -- |
| MAR , 1975 | | | | | | | |
| 07... | -- | -- | .08 | -- | -- | .00 | -- |
| 07... | -- | -- | .04 | -- | -- | .00 | -- |
| 07... | -- | -- | .03 | -- | -- | .00 | -- |
| 07... | -- | -- | .04 | -- | -- | .01 | -- |
| MAY | | | | | | | |
| 09... | -- | -- | .02 | -- | -- | .01 | -- |
| 09... | -- | -- | .01 | -- | -- | .01 | -- |
| 09... | -- | -- | .49 | -- | -- | .03 | -- |
| 09... | -- | -- | .03 | -- | -- | .01 | -- |
| AUG | | | | | | | |
| 05... | -- | -- | .02 | -- | -- | .01 | -- |

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| AUG , 1975 | | | | | | | | | | |
| 05... | 1325 | 20 | 70 | 6.7 | 8.6 | 0 | 10.9 | 1 | .02 | .00 |
| 05... | 1330 | 50 | 67 | 6.7 | 7.7 | 0 | 10.6 | <1 | .01 | .00 |
| 05... | 1335 | 100 | 66 | 6.8 | 7.1 | 0 | 10.2 | <1 | .02 | .01 |
| NOV | | | | | | | | | | |
| 21... | 1210 | 1.0 | 54 | 6.9 | 8.1 | 0 | 10.5 | 19 | .02 | .00 |
| 21... | 1215 | 20 | 54 | 7.5 | 8.1 | 0 | 10.3 | 33 | .02 | .00 |
| 21... | 1220 | 50 | 54 | 7.4 | 8.0 | 0 | 10.6 | 14 | .02 | .00 |
| 21... | 1225 | 100 | 54 | 7.4 | 7.9 | 0 | 10.3 | 55 | .02 | .00 |
| DEC | | | | | | | | | | |
| 04... | 1305 | 1.0 | -- | -- | 7.4 | 1 | 11.4 | -- | -- | -- |
| FEB , 1976 | | | | | | | | | | |
| 20... | 1210 | 1.0 | 50 | 7.6 | 5.1 | 0 | 12.0 | <1 | .02 | .01 |
| 20... | 1215 | 20 | 50 | 7.8 | 4.9 | 0 | 12.0 | 10 | .02 | .01 |
| 20... | 1220 | 50 | 50 | 7.6 | 4.9 | 0 | 12.0 | 2 | .04 | .00 |
| 20... | 1225 | 100 | 50 | 7.8 | 4.9 | 0 | 12.0 | 3 | .02 | .01 |
| MAY | | | | | | | | | | |
| 20... | 1145 | 1.0 | 52 | 6.8 | 13.6 | 0 | 10.8 | 10 | .00 | .01 |
| 20... | 1150 | 20 | 50 | 7.0 | 9.1 | 0 | 12.1 | 14 | .00 | .01 |
| 20... | 1155 | 50 | 52 | 6.9 | 6.4 | 0 | 12.1 | 3 | .00 | .01 |
| 20... | 1200 | 100 | 52 | 6.9 | 5.2 | 0 | 11.3 | 4 | .02 | .00 |
| SEP | | | | | | | | | | |
| 23... | 1100 | 1.0 | 60 | 7.2 | 12.2 | 0 | 10.2 | 12 | .00 | .00 |
| 23... | 1105 | 20 | 60 | 7.3 | 8.0 | 0 | 10.1 | 7 | .00 | .00 |
| 23... | 1110 | 50 | 60 | 7.3 | 7.4 | 0 | 10.0 | 1 | .00 | .00 |
| 23... | 1115 | 100 | 62 | 7.2 | 6.1 | 0 | 9.6 | 7 | .00 | .00 |

## 12059500 NORTH FORK SKOKOMISH RIVER NEAR POTLATCH, WA

LOCATION.--Lat 47°19'42", long 123°14'33", in NE¼NW¼ sec.7, T.21 N., R.4 W., Mason County, Hydrologic Unit 17110017, on left bank 1.0 mi (1.6 km) upstream from mouth, 5.4 mi (8.7 km) southwest of Potlatch, and 7.2 mi (11.6 km) downstream from city of Tacoma's Cushman Dam No. 2.

DRAINAGE AREA.--117 mi$^2$ (303 km$^2$), includes 99 mi$^2$ (256 km$^2$) above Cushman Dam No. 2 which is normally noncontributing.

### WATER DISCHARGE RECORDS

PERIOD OF RECORD.--March 1944 to November 1949, March 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 63.49 ft (19.352 m) above mean sea level (levels by city of Tacoma). Prior to Nov. 27, 1949 (destroyed by flood of Nov. 27, 1949), and Mar. 18 to May 9, 1950, water-stage recorder at site 200 ft (61 m) downstream at present datum.

REMARKS.--Records good except those for periods of no gage-height record, Jan. 16 to Mar. 16 and Aug. 21 to Sept. 29, which are fair. Entire flow of river normally diverted at Cushman Dam No. 2 to supply powerplant which discharges directly into sea (Hood Canal). Main portion of McTaggart Creek is diverted through Deer Meadow Creek into Cushman Reservoir No. 2 and may bypass this station. Flow regulated by Lake Cushman (see sta 12057500) and by pondage in Cushman Reservoir No. 2, from which spill and releases are infrequent.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,740 ft$^3$/s (219 m$^3$/s) Nov. 4, 1955, gage height, 10.45 ft (3.185 m); minimum recorded, 1.3 ft$^3$/s (0.037 m$^3$/s) Sept. 5, 14, 16, 1951, gage height, 2.02 ft (0.616 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,540 ft$^3$/s (157 m$^3$/s) Dec. 4, gage height, 8.77 ft (2.673 m); minimum, 5.8 ft$^3$/s (0.16 m$^3$/s) Sept. 30; minimum gage height, 1.97 ft (0.600 m) Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.1 | 1200 | 178 | 156 | 95 | 100 | 120 | 48 | 39 | 18 | 13 | 9.0 |
| 2 | 6.1 | 1170 | 754 | 136 | 85 | 90 | 105 | 45 | 33 | 17 | 13 | 9.0 |
| 3 | 17 | 1180 | 2370 | 139 | 80 | 80 | 97 | 41 | 30 | 17 | 12 | 8.5 |
| 4 | 24 | 1120 | 5020 | 264 | 75 | 75 | 92 | 41 | 29 | 18 | 12 | 8.5 |
| 5 | 36 | 1040 | 3400 | 238 | 70 | 70 | 86 | 41 | 27 | 17 | 13 | 9.0 |
| 6 | 31 | 1540 | 2140 | 178 | 65 | 65 | 84 | 41 | 27 | 16 | 13 | 9.0 |
| 7 | 21 | 1970 | 1450 | 170 | 62 | 62 | 79 | 41 | 29 | 18 | 13 | 8.5 |
| 8 | 20 | 1600 | 1090 | 174 | 60 | 60 | 81 | 39 | 27 | 29 | 12 | 8.5 |
| 9 | 51 | 1230 | 1000 | 160 | 58 | 60 | 76 | 38 | 26 | 19 | 12 | 8.5 |
| 10 | 57 | 1050 | 666 | 277 | 56 | 65 | 72 | 39 | 23 | 18 | 12 | 8.0 |
| 11 | 46 | 871 | 455 | 390 | 120 | 75 | 74 | 38 | 25 | 20 | 12 | 8.0 |
| 12 | 35 | 178 | 160 | 296 | 300 | 70 | 69 | 36 | 27 | 17 | 12 | 8.0 |
| 13 | 29 | 151 | 127 | 234 | 180 | 65 | 67 | 35 | 23 | 16 | 14 | 8.0 |
| 14 | 34 | 1550 | 105 | 490 | 200 | 62 | 69 | 33 | 22 | 15 | 15 | 12 |
| 15 | 54 | 3640 | 103 | 672 | 190 | 60 | 67 | 32 | 23 | 15 | 18 | 11 |
| 16 | 60 | 3100 | 100 | 400 | 300 | 65 | 63 | 32 | 25 | 14 | 15 | 10 |
| 17 | 271 | 2060 | 92 | 250 | 280 | 80 | 63 | 33 | 22 | 14 | 14 | 9.0 |
| 18 | 616 | 1400 | 86 | 190 | 260 | 133 | 60 | 32 | 21 | 14 | 13 | 8.5 |
| 19 | 962 | 1050 | 84 | 150 | 190 | 133 | 60 | 30 | 20 | 14 | 11 | 8.0 |
| 20 | 311 | 962 | 79 | 130 | 150 | 136 | 63 | 30 | 20 | 15 | 13 | 7.5 |
| 21 | 450 | 475 | 76 | 120 | 125 | 123 | 56 | 32 | 21 | 14 | 12 | 7.5 |
| 22 | 116 | 187 | 74 | 110 | 110 | 142 | 56 | 32 | 20 | 14 | 11 | 7.5 |
| 23 | 88 | 257 | 117 | 100 | 160 | 160 | 58 | 29 | 19 | 14 | 11 | 7.0 |
| 24 | 76 | 212 | 221 | 95 | 160 | 511 | 65 | 32 | 19 | 13 | 12 | 7.0 |
| 25 | 172 | 172 | 259 | 90 | 150 | 400 | 58 | 32 | 18 | 13 | 11 | 7.0 |
| 26 | 271 | 196 | 1170 | 100 | 135 | 322 | 56 | 32 | 18 | 13 | 11 | 6.5 |
| 27 | 391 | 178 | 621 | 350 | 130 | 268 | 54 | 32 | 17 | 13 | 11 | 6.5 |
| 28 | 378 | 145 | 365 | 220 | 120 | 213 | 54 | 27 | 17 | 12 | 10 | 6.5 |
| 29 | 1640 | 127 | 282 | 160 | 110 | 170 | 52 | 33 | 17 | 12 | 10 | 6.5 |
| 30 | 1870 | 142 | 238 | 130 | --- | 146 | 50 | 36 | 17 | 13 | 9.5 | 6.2 |
| 31 | 1340 | --- | 186 | 110 | --- | 136 | --- | 41 | --- | 13 | 9.5 | --- |
| TOTAL | 9479.2 | 30153 | 23068 | 6679 | 4076 | 4197 | 2106 | 1103 | 701 | 485 | 380.0 | 244.7 |
| MEAN | 306 | 1005 | 744 | 215 | 141 | 135 | 70.2 | 35.6 | 23.4 | 15.6 | 12.3 | 8.16 |
| MAX | 1870 | 3640 | 5020 | 672 | 300 | 511 | 120 | 48 | 39 | 29 | 18 | 12 |
| MIN | 6.1 | 127 | 74 | 90 | 56 | 60 | 50 | 27 | 17 | 12 | 9.5 | 6.2 |
| AC-FT | 18800 | 59810 | 45760 | 13250 | 8080 | 8320 | 4180 | 2190 | 1390 | 962 | 754 | 485 |

CAL YR 1975 TOTAL 81516.0 MEAN 223 MAX 5020 MIN 6.1 CFSM 1.91 IN 25.92 AC-FT 161700
WTR YR 1976 TOTAL 82671.9 MEAN 226 MAX 5020 MIN 6.1 CFSM 1.93 IN 26.29 AC-FT 164000

## 12059500 NORTH FORK SKOKOMISH RIVER NEAR POTLATCH.--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: March 1965 to current year.

INSTRUMENTATION.--Temperature recorder since March 1965.

REMARKS.--Interruptions in record due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 19.0°C July 8, 1968; minimum, 1.0°C Dec. 27, 1965, Dec. 31, 1968, Jan. 23, 31, Feb. 7, 1969, Jan. 14, 15, 1971.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 15.5°C July 15, 16, 18, 23, 25; minimum recorded, 4.0°C Nov. 30, Dec. 12.

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 11.0 | 9.0 | 10.0 | 9.0 | 8.5 | 9.0 | 7.5 | 6.0 | 6.5 | 5.5 | 5.0 | 5.0 |
| 2 | 11.0 | 10.0 | 10.5 | 9.0 | 8.5 | 9.0 | 8.0 | 7.5 | 8.0 | 6.0 | 5.5 | 5.5 |
| 3 | 11.0 | 10.5 | 10.5 | 9.5 | 9.0 | 9.0 | 8.0 | 8.0 | 8.0 | 6.0 | 6.0 | 6.0 |
| 4 | 11.0 | 9.5 | 10.5 | 9.5 | 9.0 | 9.5 | 8.0 | 7.5 | 7.5 | 6.5 | 6.0 | 6.0 |
| 5 | 10.5 | 10.0 | 10.0 | 9.5 | 8.5 | 9.0 | 7.5 | 7.5 | 7.5 | 6.5 | 6.0 | 6.0 |
| 6 | 10.5 | 9.0 | 9.5 | 9.0 | 8.5 | 8.5 | 7.5 | 7.0 | 7.5 | --- | --- | --- |
| 7 | 10.0 | 9.0 | 9.5 | 9.0 | 8.5 | 9.0 | 7.5 | 7.5 | 7.5 | --- | --- | --- |
| 8 | 10.0 | 9.5 | 9.5 | 9.0 | 8.5 | 8.5 | 8.0 | 7.5 | 7.5 | --- | --- | --- |
| 9 | 9.5 | 9.5 | 9.5 | 8.5 | 8.0 | 8.5 | 8.0 | 7.5 | 7.5 | --- | --- | --- |
| 10 | 10.0 | 9.5 | 9.5 | 8.5 | 8.0 | 8.5 | 7.5 | 7.0 | 7.5 | --- | --- | --- |
| 11 | 10.0 | 9.0 | 9.5 | 8.5 | 8.0 | 8.0 | 7.0 | 6.5 | 7.0 | --- | --- | --- |
| 12 | 10.0 | 9.5 | 10.0 | 8.0 | 7.5 | 8.0 | 6.5 | 4.0 | 6.0 | --- | --- | --- |
| 13 | 10.5 | 9.5 | 10.0 | 8.0 | 8.0 | 8.0 | 5.5 | 4.5 | 5.0 | --- | --- | --- |
| 14 | 10.0 | 9.5 | 10.0 | 8.5 | 8.0 | 8.5 | 6.0 | 5.5 | 6.0 | --- | --- | --- |
| 15 | 10.0 | 9.0 | 9.5 | 8.5 | 8.5 | 8.5 | 6.5 | 6.0 | 6.0 | --- | --- | --- |
| 16 | 9.5 | 9.5 | 9.5 | 8.5 | 8.5 | 8.5 | 6.0 | 5.5 | 6.0 | --- | --- | --- |
| 17 | 10.5 | 9.5 | 10.0 | 8.5 | 8.0 | 8.0 | 5.5 | 5.0 | 5.5 | --- | --- | --- |
| 18 | 9.5 | 8.5 | 9.0 | 8.0 | 7.5 | 8.0 | 5.5 | 5.0 | 5.0 | --- | --- | --- |
| 19 | 9.5 | 9.0 | 9.0 | 8.0 | 7.0 | 7.5 | 6.0 | 5.0 | 5.5 | --- | --- | --- |
| 20 | 9.5 | 9.0 | 9.0 | 8.0 | 7.5 | 8.0 | 5.5 | 5.0 | 5.0 | --- | --- | --- |
| 21 | 9.5 | 8.5 | 9.0 | 8.0 | 7.5 | 8.0 | 5.5 | 4.5 | 5.0 | --- | --- | --- |
| 22 | 9.0 | 8.0 | 8.5 | 7.5 | 7.0 | 7.0 | 6.0 | 5.5 | 5.5 | --- | --- | --- |
| 23 | 8.5 | 7.5 | 8.0 | 8.0 | 7.0 | 7.5 | 6.0 | 5.5 | 5.5 | --- | --- | --- |
| 24 | 8.0 | 7.5 | 8.0 | 8.5 | 8.0 | 8.0 | 6.5 | 6.0 | 6.0 | --- | --- | --- |
| 25 | 8.5 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 6.5 | 6.5 | 6.5 | --- | --- | --- |
| 26 | 8.0 | 7.5 | 7.5 | 8.0 | 7.5 | 7.5 | 7.0 | 6.5 | 7.0 | --- | --- | --- |
| 27 | 8.0 | 7.5 | 8.0 | 8.0 | 6.5 | 7.5 | 7.0 | 6.5 | 7.0 | --- | --- | --- |
| 28 | 8.0 | 7.5 | 8.0 | 6.5 | 6.0 | 6.5 | 7.5 | 7.0 | 7.0 | --- | --- | --- |
| 29 | 8.5 | 8.0 | 8.0 | 6.0 | 4.5 | 5.5 | 7.5 | 7.0 | 7.5 | --- | --- | --- |
| 30 | 9.0 | 8.5 | 8.5 | 6.0 | 4.0 | 5.0 | 7.0 | 6.0 | 6.5 | --- | --- | --- |
| 31 | 9.0 | 8.5 | 9.0 | --- | --- | --- | 6.0 | 5.5 | 5.5 | --- | --- | --- |
| MONTH | 11.0 | 7.5 | 9.0 | 9.5 | 4.0 | 8.0 | 8.0 | 4.0 | 6.5 | --- | --- | --- |

## 12059500 NORTH FORK SKOKOMISH RIVER NEAR POTLATCH.--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | | | | --- | --- | --- | 8.0 | 5.0 | 6.5 | 13.5 | 9.5 | 11.0 |
| 2 | | | | --- | --- | --- | 8.5 | 5.5 | 7.0 | 11.5 | 10.0 | 10.5 |
| 3 | | | | --- | --- | --- | 9.5 | 5.5 | 7.5 | 10.5 | 9.0 | 9.5 |
| 4 | | | | --- | --- | --- | 9.5 | 6.0 | 7.5 | 10.0 | 8.5 | 9.5 |
| 5 | | | | --- | --- | --- | 8.0 | 6.0 | 7.0 | 10.5 | 8.0 | 9.0 |
| 6 | | | | --- | --- | --- | 9.0 | 6.5 | 7.5 | 12.0 | 8.0 | 9.5 |
| 7 | | | | --- | --- | --- | 8.0 | 6.5 | 7.0 | 13.0 | 8.5 | 10.5 |
| 8 | | | | --- | --- | --- | 8.5 | 7.5 | 7.5 | 14.0 | 9.5 | 11.0 |
| 9 | | | | --- | --- | --- | 9.5 | 6.5 | 8.0 | 14.0 | 9.5 | 11.5 |
| 10 | | | | --- | --- | --- | 10.5 | 7.5 | 8.5 | 11.5 | 9.5 | 10.5 |
| 11 | | | | --- | --- | --- | 10.5 | 8.0 | 9.0 | 11.5 | 8.5 | 10.0 |
| 12 | | | | --- | --- | --- | 10.0 | 7.0 | 8.0 | 13.5 | 9.0 | 10.0 |
| 13 | | | | --- | --- | --- | 10.0 | 7.5 | 8.5 | 11.5 | 9.0 | 10.0 |
| 14 | | | | --- | --- | --- | 8.0 | 6.5 | 7.0 | 12.5 | 8.5 | 10.0 |
| 15 | | | | --- | --- | --- | 9.5 | 6.0 | 7.5 | 13.5 | 8.5 | 10.5 |
| 16 | | | | --- | --- | --- | 9.0 | 6.0 | 7.5 | 12.5 | 9.0 | 10.5 |
| 17 | | | | --- | --- | --- | 8.0 | 7.0 | 7.5 | 12.5 | 8.5 | 10.0 |
| 18 | | | | 7.0 | 6.0 | 6.5 | 8.5 | 6.0 | 7.0 | 13.0 | 8.0 | 10.0 |
| 19 | | | | 7.0 | 5.0 | 6.0 | 8.0 | 7.0 | 7.5 | 11.0 | 8.5 | 9.5 |
| 20 | | | | 7.5 | 5.0 | 6.0 | 10.5 | 7.0 | 8.5 | 12.0 | 8.5 | 10.0 |
| 21 | | | | 7.0 | 5.5 | 6.5 | 10.0 | 6.5 | 8.0 | 13.5 | 8.5 | 10.5 |
| 22 | | | | 8.0 | 6.0 | 7.0 | 8.5 | 6.5 | 7.5 | 12.5 | 9.0 | 10.5 |
| 23 | | | | 6.0 | 4.5 | 5.5 | 7.5 | 6.5 | 7.0 | 11.0 | 9.5 | 10.5 |
| 24 | | | | 5.0 | 4.5 | 5.0 | 9.5 | 7.0 | 8.0 | 11.0 | 9.0 | 10.0 |
| 25 | | | | 6.5 | 5.0 | 5.5 | 9.5 | 6.5 | 7.5 | 10.5 | 8.5 | 9.5 |
| 26 | | | | 6.0 | 5.5 | 5.5 | 11.0 | 6.0 | 8.5 | 13.0 | 9.0 | 10.5 |
| 27 | | | | 6.5 | 5.0 | 5.5 | 11.5 | 7.0 | 9.0 | 12.0 | 9.5 | 11.0 |
| 28 | | | | 7.5 | 5.0 | 6.0 | 10.5 | 7.5 | 9.0 | 10.0 | 8.0 | 9.0 |
| 29 | | | | 7.0 | 5.5 | 6.5 | 13.0 | 8.0 | 10.0 | 8.5 | 8.0 | 8.5 |
| 30 | | | | 7.0 | 6.5 | 6.5 | 13.0 | 9.0 | 11.0 | 9.5 | 7.5 | 8.5 |
| 31 | | | | 7.5 | 6.0 | 6.5 | --- | --- | --- | 9.5 | 8.0 | 8.5 |
| MONTH | | | | --- | --- | --- | 13.0 | 5.0 | 8.0 | 14.0 | 7.5 | 10.0 |

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 11.0 | 8.0 | 9.0 | 13.0 | 10.0 | 11.5 | 12.5 | 11.0 | 12.0 | 14.0 | 11.0 | 12.5 |
| 2 | 10.5 | 8.0 | 9.0 | 14.5 | 9.5 | 11.5 | 14.0 | 11.0 | 12.5 | 13.0 | 11.5 | 12.0 |
| 3 | 11.5 | 7.5 | 9.0 | 11.5 | 10.5 | 11.0 | 14.5 | 11.5 | 13.0 | 14.0 | 10.5 | 12.0 |
| 4 | 12.0 | 8.0 | 9.5 | 12.5 | 10.5 | 11.5 | 13.0 | 11.5 | 12.0 | 13.5 | 11.0 | 12.5 |
| 5 | 13.0 | 8.0 | 10.5 | 15.0 | 10.5 | 12.5 | 13.0 | 11.5 | 12.0 | 12.5 | 11.5 | 12.0 |
| 6 | 13.0 | 9.0 | 10.5 | 14.0 | 11.5 | 12.5 | 13.0 | 11.5 | 12.0 | 13.0 | 10.5 | 11.5 |
| 7 | 11.5 | 9.0 | 10.5 | 12.5 | 11.5 | 12.0 | 12.0 | 11.5 | 12.0 | 13.5 | 10.0 | 11.5 |
| 8 | 12.5 | 9.0 | 10.5 | 13.0 | 11.5 | 12.5 | 13.0 | 11.0 | 12.0 | 13.0 | 9.5 | 11.0 |
| 9 | 13.5 | 9.5 | 11.0 | 13.0 | 11.0 | 12.0 | 13.0 | 11.0 | 12.0 | 13.0 | 9.5 | 11.0 |
| 10 | 13.5 | 10.0 | 11.0 | 13.0 | 10.5 | 11.5 | 14.5 | 11.5 | 13.0 | 13.0 | 9.5 | 11.0 |
| 11 | 10.5 | 9.5 | 10.0 | 13.5 | 11.0 | 12.0 | 15.0 | 11.5 | 13.0 | 12.5 | 10.5 | 11.5 |
| 12 | 12.0 | 9.0 | 10.5 | 14.5 | 10.5 | 12.0 | 15.0 | 11.5 | 13.0 | 12.5 | 10.5 | 11.5 |
| 13 | 12.5 | 8.0 | 10.0 | 14.5 | 10.5 | 12.5 | 13.0 | 11.5 | 12.0 | 12.5 | 10.5 | 11.5 |
| 14 | 14.0 | 9.0 | 11.0 | 15.0 | 10.5 | 12.5 | 12.0 | 11.5 | 11.5 | 12.0 | 11.5 | 11.5 |
| 15 | 12.0 | 10.0 | 11.0 | 15.5 | 10.5 | 13.0 | 11.5 | 11.0 | 11.5 | 13.0 | 11.0 | 11.5 |
| 16 | 11.5 | 10.0 | 10.5 | 15.5 | 11.0 | 13.0 | 12.0 | 11.0 | 11.5 | 11.5 | 10.0 | 11.0 |
| 17 | 14.5 | 10.0 | 12.0 | 15.0 | 11.5 | 13.0 | 12.5 | 10.5 | 11.5 | 12.0 | 10.5 | 11.0 |
| 18 | 14.5 | 10.0 | 12.0 | 15.5 | 11.0 | 13.0 | 14.0 | 10.0 | 11.5 | 13.0 | 10.5 | 11.5 |
| 19 | 15.0 | 11.0 | 12.5 | 15.0 | 10.5 | 12.5 | 12.0 | 11.0 | 11.0 | 13.5 | 10.0 | 11.5 |
| 20 | 14.0 | 11.0 | 12.5 | 14.5 | 12.0 | 13.0 | 13.0 | 10.5 | 12.0 | 13.5 | 10.5 | 12.0 |
| 21 | 15.0 | 10.5 | 12.5 | 12.5 | 10.5 | 11.5 | 14.5 | 11.0 | 12.0 | 13.5 | 11.0 | 12.0 |
| 22 | 14.5 | 10.0 | 12.0 | 13.5 | 11.0 | 12.0 | 13.0 | 11.0 | 12.0 | 12.5 | 11.5 | 11.5 |
| 23 | 14.0 | 10.5 | 12.0 | 15.5 | 11.0 | 13.0 | 12.0 | 11.0 | 11.5 | 12.5 | 11.0 | 11.5 |
| 24 | 13.5 | 10.0 | 11.5 | 15.0 | 11.5 | 13.0 | 13.0 | 11.0 | 12.0 | 13.5 | 11.0 | 12.0 |
| 25 | 13.5 | 9.0 | 11.0 | 15.5 | 11.5 | 13.0 | 13.5 | 11.0 | 12.0 | 13.0 | 10.5 | 11.5 |
| 26 | 14.0 | 9.0 | 11.5 | 13.5 | 11.0 | 12.5 | 12.5 | 10.0 | 11.0 | 13.5 | 11.0 | 12.0 |
| 27 | 14.5 | 9.5 | 11.5 | 15.0 | 11.0 | 12.5 | 12.0 | 11.0 | 11.5 | 13.5 | 11.0 | 12.0 |
| 28 | 14.0 | 10.5 | 12.0 | 15.0 | 10.5 | 12.5 | 14.5 | 11.0 | 12.5 | 13.0 | 11.0 | 12.0 |
| 29 | 13.0 | 11.0 | 12.0 | 13.5 | 12.0 | 12.5 | 14.0 | 11.0 | 12.5 | 12.0 | 11.5 | 11.5 |
| 30 | 11.5 | 10.0 | 11.0 | 14.5 | 11.0 | 12.5 | 14.5 | 11.5 | 12.5 | 13.0 | 11.0 | 13.0 |
| 31 | --- | --- | --- | 15.0 | 11.0 | 12.5 | 14.0 | 11.5 | 12.5 | --- | --- | --- |
| MONTH | 15.0 | 7.5 | 11.0 | 15.5 | 9.5 | 12.5 | 15.0 | 10.0 | 12.0 | 14.0 | 9.5 | 11.5 |
| YEAR | 15.5 | 4.0 | 9.5 | | | | | | | | | |

## 12060500 SOUTH FORK SKOKOMISH RIVER NEAR UNION, WA

**LOCATION.**--Lat 47°20'26", long 123°16'44", in SW¼NE¼ sec.2, T.21 N., R.5 W., Mason County, Hydrologic Unit 17110017, on right bank 3.0 mi (4.8 km) upstream from Vance Creek, 3.2 mi (5.1 km) upstream from confluence with North Fork and 8.5 mi (13.7 km) west of Union.

**DRAINAGE AREA.**--76.3 mi$^2$ (198 km$^2$).

**PERIOD OF RECORD.**--August 1931 to current year.

**REVISED RECORDS.**--WSP 1216: 1950. WSP 1316: 1934(M), 1938(M). WSP 1932: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 103.35 ft (31.501 m) above mean sea level.

**REMARKS.**--Records good. No regulation or diversion above station.

**AVERAGE DISCHARGE.**--45 years, 742 ft$^3$/s (21.01 m$^3$/s) 132.06 in/yr (3,354 mm/yr), 537,600 acre-ft/yr (663 hm$^3$/yr).

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 21,600 ft$^3$/s (612 m$^3$/s) Jan. 22, 1935, Nov. 26, 1949, gage height, 11.0 ft (3.35 m) from rating curve extended above 11,000 ft$^3$/s (312 m$^3$/s); minimum, 62 ft$^3$/s (1.76 m$^3$/s) Sept. 18, 1938; minimum gage height, 1.06 ft (0.323 m) Oct. 3, 1965.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges above base of 6,000 ft$^3$/s (170 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 1400 | 6,830 | 193 | 5.41 | 1.649 | Dec. 3 | 2400 | *13,700 | 388 | *7.13 | 2.173 |
| Oct. 29 | 2200 | 7,500 | 212 | 5.63 | 1.716 | Dec. 26 | 1000 | 11,300 | 320 | 6.60 | 2.012 |
| Nov. 15 | 0500 | 9,040 | 256 | 6.06 | 1.847 | | | | | | |

Minimum discharge, 96 ft$^3$/s (2.72 m$^3$/s) Sept. 30; minimum gage height, 1.28 ft (0.390 m) Oct. 2.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 112 | 2380 | 1750 | 1070 | 690 | 526 | 710 | 983 | 542 | 334 | 182 | 138 |
| 2 | 112 | 2270 | 6140 | 910 | 631 | 494 | 640 | 1150 | 478 | 308 | 178 | 132 |
| 3 | 272 | 2870 | 7500 | 874 | 586 | 470 | 613 | 862 | 438 | 290 | 178 | 129 |
| 4 | 771 | 2690 | 6490 | 1660 | 542 | 430 | 650 | 720 | 414 | 414 | 178 | 126 |
| 5 | 925 | 2080 | 2730 | 1640 | 518 | 422 | 720 | 660 | 383 | 369 | 174 | 129 |
| 6 | 826 | 2060 | 1820 | 1180 | 502 | 398 | 828 | 604 | 383 | 341 | 170 | 129 |
| 7 | 488 | 2380 | 1490 | 1020 | 470 | 390 | 806 | 622 | 414 | 341 | 166 | 123 |
| 8 | 470 | 1970 | 1360 | 1210 | 478 | 376 | 983 | 806 | 414 | 740 | 163 | 123 |
| 9 | 2540 | 1550 | 1210 | 1150 | 446 | 376 | 1010 | 886 | 414 | 534 | 159 | 119 |
| 10 | 2180 | 1240 | 1060 | 1370 | 414 | 438 | 922 | 900 | 414 | 430 | 156 | 116 |
| 11 | 1290 | 1090 | 934 | 1990 | 660 | 478 | 1130 | 800 | 406 | 383 | 152 | 113 |
| 12 | 859 | 1050 | 850 | 1330 | 1670 | 446 | 1010 | 720 | 494 | 355 | 149 | 110 |
| 13 | 650 | 1200 | 784 | 1040 | 1270 | 430 | 862 | 640 | 430 | 320 | 156 | 110 |
| 14 | 630 | 4760 | 720 | 2150 | 1450 | 406 | 795 | 613 | 376 | 314 | 182 | 159 |
| 15 | 1050 | 5620 | 720 | 4570 | 1280 | 390 | 740 | 550 | 422 | 302 | 215 | 159 |
| 16 | 1030 | 2650 | 700 | 3150 | 1670 | 422 | 650 | 559 | 502 | 308 | 245 | 135 |
| 17 | 5820 | 1870 | 660 | 2070 | 1520 | 762 | 595 | 542 | 446 | 302 | 194 | 126 |
| 18 | 2920 | 1480 | 622 | 1520 | 1450 | 2270 | 559 | 494 | 462 | 284 | 170 | 123 |
| 19 | 2350 | 1230 | 613 | 1220 | 1090 | 1420 | 550 | 478 | 494 | 266 | 166 | 119 |
| 20 | 1660 | 1080 | 586 | 1020 | 874 | 1040 | 604 | 446 | 438 | 266 | 215 | 113 |
| 21 | 1270 | 980 | 568 | 898 | 730 | 850 | 577 | 430 | 398 | 250 | 190 | 110 |
| 22 | 1020 | 1100 | 577 | 828 | 660 | 1180 | 534 | 430 | 369 | 235 | 174 | 110 |
| 23 | 837 | 2380 | 817 | 762 | 1120 | 1060 | 518 | 422 | 355 | 235 | 166 | 110 |
| 24 | 720 | 2020 | 2110 | 690 | 996 | 1310 | 640 | 462 | 341 | 235 | 174 | 107 |
| 25 | 1300 | 1510 | 1840 | 631 | 874 | 1240 | 613 | 534 | 320 | 230 | 166 | 104 |
| 26 | 1630 | 1700 | 7230 | 660 | 751 | 1050 | 577 | 454 | 314 | 225 | 159 | 104 |
| 27 | 1920 | 1380 | 3330 | 2670 | 700 | 934 | 542 | 502 | 302 | 215 | 156 | 101 |
| 28 | 1690 | 1150 | 1930 | 1420 | 631 | 806 | 604 | 470 | 314 | 206 | 159 | 99 |
| 29 | 4930 | 1000 | 1810 | 1060 | 577 | 710 | 650 | 462 | 327 | 202 | 152 | 99 |
| 30 | 4200 | 1110 | 1780 | 874 | --- | 680 | 795 | 502 | 314 | 198 | 145 | 99 |
| 31 | 2140 | --- | 1340 | 762 | --- | 784 | --- | 526 | --- | 190 | 142 | --- |
| TOTAL | 48612 | 57850 | 62071 | 43399 | 25250 | 22988 | 21427 | 19229 | 12118 | 9622 | 5331 | 3574 |
| MEAN | 1568 | 1928 | 2002 | 1400 | 871 | 742 | 714 | 620 | 404 | 310 | 172 | 119 |
| MAX | 5820 | 5620 | 7500 | 4570 | 1670 | 2270 | 1130 | 1150 | 542 | 740 | 245 | 159 |
| MIN | 112 | 980 | 568 | 631 | 414 | 376 | 518 | 422 | 302 | 190 | 142 | 99 |
| CFSM | 20.6 | 25.3 | 26.2 | 18.3 | 11.4 | 9.72 | 9.36 | 8.13 | 5.29 | 4.06 | 2.25 | 1.56 |
| IN. | 23.70 | 28.20 | 30.26 | 21.16 | 12.31 | 11.21 | 10.45 | 9.37 | 5.91 | 4.69 | 2.60 | 1.74 |
| AC-FT | 96420 | 114700 | 123100 | 86080 | 50080 | 45600 | 42500 | 38140 | 24040 | 19090 | 10570 | 7090 |

CAL YR 1975 TOTAL 328665 MEAN 900 MAX 7500 MIN 112 CFSM 11.8 IN 160.24 AC-FT 651900
WTR YR 1976 TOTAL 331471 MEAN 906 MAX 7500 MIN 99 CFSM 11.9 IN 161.61 AC-FT 657500

## 12061500 SKOKOMISH RIVER NEAR POTLATCH, WA

LOCATION.--Lat 47°18'36". long 123°10'33", in SE¼NW¼ sec.15, T.21 N., R.4 W., Mason County, Hydrologic Unit 17110017, on upstream side of right pier of bridge on U.S. Highway 101, 3.7 mi (6.0 km) downstream from confluence of North and South Forks, 4.7 mi (7.6 km) southwest of Potlatch, and at mile 5.3 (8.5 km).

DRAINAGE AREA.--227 mi$^2$ (588 km$^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1943 to current year.

REVISED RECORDS.--WSP 1716: 1950(M), 1956. WSP 1932: Drainage area. WRD Wash. 1972: 1968(M), 1971(M). WRD Wash. 1975: 1974.

GAGE.--Water-stage recorder. Datum of gage is 10.67 ft (3.252 m) above mean sea level. Prior to May 27, 1964, water-stage recorders or nonrecording gage at several sites about 0.6 mi (1.0 km) upstream at different datums. Supplementary water-stage recorder on right bank at site 0.6 mile (1.0 km) upstream at datum 16.47 ft (5.020 m) above mean sea level, used Nov. 16 to Dec. 10, 1964, June 11 to July 7, and Nov. 2-24, 1965.

REMARKS.--Records good except those above 10,000 cfs, which are poor. Flow partly regulated by Lake Cushman and Cushman Reservoir No. 2. In normal years practically entire flow of North Fork is diverted at Cushman Dam No. 2 and is discharged into Puget Sound through Cushman powerplant No. 2.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 ft$^3$/s (765 m$^3$/s) Nov. 3, 1955, gage height, 12.6 ft (3.84 m) site and datum then in use; minimum, 125 ft$^3$/s (3.54 m$^3$/s), Sept. 14-17, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 1933 reached an elevation of 30.8 ft (9.39 m) above mean sea level, at site on left bank 150 ft (46 m) above old highway bridge, discharge, 18,600 ft$^3$/s (527 m$^3$/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,200 ft$^3$/s (572 m$^3$/s) Dec. 4, gage height, 16.01 ft (4.880 m); minimum, 193 ft$^3$/s (5.47 m$^3$/s) Sept. 30, gage height, 7.86 ft (2.396 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 208 | 4180 | 2420 | 1710 | 1120 | 1140 | 1300 | 1250 | 862 | 487 | 303 | 250 |
| 2 | 208 | 3930 | 9100 | 1480 | 1030 | 1030 | 1180 | 1440 | 774 | 466 | 298 | 245 |
| 3 | 285 | 4850 | 13800 | 1410 | 955 | 946 | 1110 | 1230 | 702 | 445 | 292 | 240 |
| 4 | 973 | 4570 | 15900 | 2380 | 894 | 878 | 1130 | 1050 | 654 | 545 | 286 | 235 |
| 5 | 1100 | 3500 | 8020 | 2510 | 830 | 822 | 1180 | 964 | 614 | 537 | 286 | 230 |
| 6 | 1270 | 3840 | 4840 | 1880 | 790 | 782 | 1280 | 894 | 598 | 501 | 286 | 230 |
| 7 | 775 | 5000 | 3510 | 1660 | 758 | 766 | 1260 | 886 | 622 | 501 | 281 | 230 |
| 8 | 667 | 4140 | 2900 | 1860 | 758 | 742 | 1390 | 1030 | 622 | 946 | 275 | 225 |
| 9 | 2730 | 3210 | 2540 | 1800 | 726 | 734 | 1470 | 1120 | 622 | 798 | 270 | 225 |
| 10 | 2860 | 2620 | 2160 | 2240 | 694 | 798 | 1360 | 1160 | 622 | 646 | 270 | 220 |
| 11 | 1820 | 2310 | 1710 | 3300 | 1130 | 886 | 1550 | 1110 | 614 | 575 | 264 | 215 |
| 12 | 1230 | 1670 | 1380 | 2350 | 2760 | 846 | 1490 | 937 | 686 | 530 | 259 | 210 |
| 13 | 937 | 1660 | 1240 | 1840 | 2000 | 806 | 1310 | 902 | 630 | 494 | 260 | 210 |
| 14 | 847 | 7020 | 1130 | 3250 | 2270 | 774 | 1240 | 886 | 575 | 466 | 310 | 300 |
| 15 | 1480 | 11900 | 1160 | 7540 | 2150 | 750 | 1200 | 814 | 582 | 452 | 360 | 300 |
| 16 | 1310 | 7120 | 1120 | 4720 | 2720 | 758 | 1070 | 798 | 702 | 445 | 410 | 260 |
| 17 | 7680 | 4440 | 1040 | 3060 | 2610 | 1140 | 1000 | 806 | 654 | 438 | 340 | 240 |
| 18 | 5460 | 3200 | 973 | 2270 | 2630 | 2980 | 937 | 742 | 654 | 425 | 300 | 230 |
| 19 | 4160 | 2560 | 928 | 1820 | 2090 | 2270 | 902 | 702 | 662 | 406 | 280 | 220 |
| 20 | 2800 | 2250 | 894 | 1550 | 1670 | 1700 | 973 | 670 | 622 | 393 | 360 | 215 |
| 21 | 2230 | 1790 | 862 | 1370 | 1420 | 1450 | 946 | 646 | 575 | 386 | 330 | 210 |
| 22 | 1590 | 1600 | 870 | 1270 | 1260 | 1780 | 886 | 646 | 545 | 368 | 310 | 210 |
| 23 | 1310 | 3460 | 1180 | 1180 | 1690 | 1750 | 870 | 630 | 515 | 356 | 300 | 210 |
| 24 | 1140 | 3080 | 2860 | 1080 | 1740 | 2460 | 1020 | 654 | 501 | 350 | 310 | 205 |
| 25 | 1940 | 2270 | 2680 | 1000 | 1620 | 2430 | 1020 | 766 | 487 | 344 | 300 | 200 |
| 26 | 2640 | 2470 | 10800 | 1020 | 1470 | 2050 | 946 | 686 | 466 | 338 | 290 | 200 |
| 27 | 3500 | 2080 | 5670 | 3560 | 1430 | 1850 | 902 | 710 | 452 | 326 | 290 | 195 |
| 28 | 3120 | 1710 | 3140 | 2170 | 1380 | 1590 | 937 | 694 | 452 | 320 | 290 | 195 |
| 29 | 9300 | 1490 | 2740 | 1630 | 1270 | 1400 | 973 | 694 | 473 | 320 | 280 | 195 |
| 30 | 9900 | 1620 | 2750 | 1380 | --- | 1290 | 1080 | 774 | 466 | 314 | 270 | 193 |
| 31 | 4200 | --- | 2100 | 1220 | --- | 1390 | --- | 806 | --- | 309 | 260 | --- |
| TOTAL | 79670 | 105540 | 112417 | 67510 | 43865 | 40988 | 33912 | 27097 | 18005 | 14227 | 9220 | 6743 |
| MEAN | 2570 | 3518 | 3626 | 2178 | 1513 | 1322 | 1130 | 874 | 600 | 459 | 297 | 225 |
| MAX | 9900 | 11900 | 15900 | 7540 | 2760 | 2980 | 1550 | 1440 | 862 | 946 | 410 | 300 |
| MIN | 208 | 1490 | 862 | 1000 | 694 | 734 | 870 | 630 | 452 | 309 | 259 | 193 |
| AC-FT | 158000 | 209300 | 223000 | 133900 | 87010 | 81300 | 67260 | 53750 | 35710 | 28220 | 18290 | 13370 |

CAL YR 1975 TOTAL 542155 MEAN 1485 MAX 15900 MIN 208 AC-FT 1075000
WTR YR 1976 TOTAL 559194 MEAN 1528 MAX 15900 MIN 193 AC-FT 1109000

## 12061500 SKOKOMISH RIVER NEAR POTLATCH, WA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1955 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: May 1955 to September 1962, October 1963 to current year.

INSTRUMENTATION.--Temperature recorder since May 1955.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 20.5°C July 13, 1961; minimum, (1955-62, 1964-76) 1.0°C Mar. 7, 1956.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 15.0°C July 16; minimum recorded, 3.5°C Feb. 27, Mar. 24.

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 11.5 | 9.0 | 10.0 | --- | --- | --- | --- | --- | --- | 5.5 | 4.5 | 5.0 |
| 2 | 11.0 | 9.5 | 10.0 | --- | --- | --- | --- | --- | --- | 6.0 | 5.0 | 5.5 |
| 3 | 10.5 | 10.0 | 10.0 | --- | --- | --- | --- | --- | --- | 5.5 | 5.5 | 5.5 |
| 4 | 11.0 | 9.5 | 10.5 | --- | --- | --- | --- | --- | --- | 6.0 | 5.5 | 6.0 |
| 5 | 10.5 | 9.5 | 10.0 | --- | --- | --- | --- | --- | --- | 6.0 | 5.5 | 5.5 |
| 6 | 10.5 | 9.0 | 9.5 | --- | --- | --- | --- | --- | --- | 6.0 | 5.0 | 5.5 |
| 7 | 10.5 | 9.0 | 9.5 | --- | --- | --- | --- | --- | --- | 6.0 | 5.5 | 5.5 |
| 8 | 10.0 | 9.0 | 9.5 | --- | --- | --- | --- | --- | --- | 6.0 | 6.0 | 6.0 |
| 9 | 9.5 | 9.0 | 9.0 | --- | --- | --- | --- | --- | --- | 6.0 | 5.5 | 5.5 |
| 10 | 9.5 | 9.0 | 9.0 | --- | --- | --- | --- | --- | --- | 6.0 | 5.0 | 5.5 |
| 11 | 9.5 | 8.5 | 9.0 | --- | --- | --- | 6.5 | 6.0 | 6.5 | 5.5 | 5.0 | 5.5 |
| 12 | 10.0 | 9.0 | 9.5 | --- | --- | --- | 6.0 | 4.0 | 5.5 | 5.5 | 5.0 | 5.5 |
| 13 | 10.0 | 9.0 | 9.5 | --- | --- | --- | 5.5 | 4.0 | 5.0 | 5.5 | 5.5 | 5.5 |
| 14 | 9.5 | 9.0 | 9.5 | --- | --- | --- | 6.0 | 5.5 | 5.5 | 6.0 | 5.5 | 6.0 |
| 15 | 10.0 | 8.5 | 9.0 | --- | --- | --- | 6.5 | 6.0 | 6.5 | 6.5 | 6.0 | 6.0 |
| 16 | --- | --- | --- | --- | --- | --- | 6.5 | 5.5 | 6.0 | 6.5 | 6.0 | 6.5 |
| 17 | --- | --- | --- | --- | --- | --- | 6.0 | 5.5 | 5.5 | 6.5 | 6.0 | 6.5 |
| 18 | --- | --- | --- | --- | --- | --- | 6.0 | 5.0 | 5.5 | 6.5 | 6.0 | 6.0 |
| 19 | --- | --- | --- | --- | --- | --- | 6.0 | 5.5 | 5.5 | 6.0 | 5.5 | 5.5 |
| 20 | --- | --- | --- | 7.5 | 6.5 | 7.0 | 6.0 | 5.0 | 5.5 | 6.0 | 5.0 | 5.5 |
| 21 | --- | --- | --- | 7.5 | 7.0 | 7.0 | 6.0 | 5.0 | 5.5 | 6.0 | 5.0 | 5.5 |
| 22 | --- | --- | --- | 7.0 | 6.5 | 7.0 | 6.5 | 6.0 | 6.0 | 6.5 | 6.0 | 6.5 |
| 23 | --- | --- | --- | 7.5 | 7.0 | 7.0 | 6.5 | 6.0 | 6.0 | 6.5 | 5.5 | 6.0 |
| 24 | --- | --- | --- | 7.5 | 7.5 | 7.5 | 6.0 | 6.0 | 6.0 | 6.0 | 5.5 | 6.0 |
| 25 | --- | --- | --- | 7.5 | 7.0 | 7.5 | 6.5 | 6.0 | 6.0 | 6.0 | 5.5 | 5.5 |
| 26 | --- | --- | --- | 7.5 | 7.0 | 7.0 | 6.5 | 6.0 | 6.5 | 6.5 | 6.0 | 6.0 |
| 27 | --- | --- | --- | 7.0 | 6.5 | 7.0 | 6.5 | 6.0 | 6.0 | 6.5 | 5.5 | 6.0 |
| 28 | --- | --- | --- | --- | --- | --- | 7.0 | 6.5 | 6.5 | 7.0 | 6.0 | 6.5 |
| 29 | --- | --- | --- | --- | --- | --- | 7.5 | 6.5 | 7.0 | 7.0 | 6.0 | 6.5 |
| 30 | --- | --- | --- | --- | --- | --- | 6.5 | 5.5 | 6.0 | 7.0 | 6.5 | 6.5 |
| 31 | --- | --- | --- | --- | --- | --- | 5.5 | 5.0 | 5.5 | 6.5 | 6.0 | 6.5 |
| MONTH | --- | --- | --- | --- | --- | --- | --- | --- | --- | 7.0 | 4.5 | 6.0 |

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 6.0 | 5.5 | 6.0 | 6.5 | 5.0 | 5.5 | 8.0 | 5.0 | 6.5 | 11.5 | 7.5 | 9.0 |
| 2 | 6.0 | 6.0 | 6.0 | 6.5 | 4.5 | 5.5 | 8.5 | 5.5 | 7.0 | 9.5 | 7.5 | 8.5 |
| 3 | 7.0 | 5.5 | 6.0 | 6.0 | 5.0 | 5.5 | 9.0 | 5.5 | 7.0 | 8.5 | 7.0 | 8.0 |
| 4 | 5.5 | 4.5 | 5.0 | 7.0 | 4.5 | 5.5 | 9.0 | 6.0 | 7.5 | 8.5 | 7.0 | 8.0 |
| 5 | 5.5 | 4.0 | 5.0 | 7.0 | 4.5 | 5.5 | 8.0 | 5.5 | 7.0 | 9.0 | 6.5 | 8.0 |
| 6 | 6.0 | 4.5 | 5.0 | 7.0 | 5.0 | 6.0 | 8.5 | 6.0 | 7.0 | 11.0 | 7.0 | 9.0 |
| 7 | 6.5 | 5.0 | 5.5 | 7.0 | 5.5 | 6.0 | 7.0 | 6.0 | 6.5 | 11.5 | 7.5 | 9.5 |
| 8 | 6.5 | 5.5 | 6.0 | 8.0 | 5.0 | 6.5 | 7.5 | 6.5 | 7.0 | 12.0 | 8.0 | 10.0 |
| 9 | 6.5 | 5.5 | 6.0 | 6.5 | 6.0 | 6.0 | 8.5 | 6.0 | 7.0 | 12.0 | 7.5 | 9.5 |
| 10 | 7.0 | 5.5 | 6.5 | 8.0 | 5.5 | 6.5 | 9.0 | 6.5 | 7.5 | 10.0 | 7.5 | 8.5 |
| 11 | 6.5 | 6.0 | 6.0 | 7.5 | 5.0 | 6.0 | 8.5 | 6.5 | 7.5 | 10.0 | 7.0 | 8.5 |
| 12 | 6.5 | 5.5 | 6.0 | 7.0 | 5.0 | 6.0 | 8.5 | 6.0 | 7.0 | 11.5 | 7.5 | 9.5 |
| 13 | 6.5 | 6.0 | 6.0 | 6.5 | 5.5 | 6.0 | 9.0 | 6.5 | 7.5 | 10.0 | 8.0 | 9.0 |
| 14 | 6.5 | 5.5 | 6.0 | 8.5 | 6.0 | 6.5 | 7.0 | 5.5 | 6.5 | 11.0 | 7.5 | 9.0 |
| 15 | 6.0 | 5.5 | 6.0 | 8.5 | 5.5 | 6.5 | 9.0 | 5.0 | 7.0 | 12.0 | 7.5 | 9.5 |
| 16 | 7.0 | 6.0 | 6.0 | 8.0 | 6.5 | 7.0 | 8.0 | 5.5 | 7.0 | 11.0 | 8.0 | 9.5 |
| 17 | 6.0 | 4.5 | 5.5 | 7.0 | 6.0 | 7.0 | 7.5 | 6.5 | 7.0 | 11.0 | 7.5 | 9.0 |
| 18 | 6.0 | 5.0 | 5.5 | 6.0 | 5.0 | 5.5 | 8.0 | 5.5 | 7.0 | 11.5 | 7.5 | 9.5 |
| 19 | 6.5 | 5.0 | 6.0 | 6.5 | 4.5 | 5.5 | 8.0 | 6.5 | 7.0 | 10.0 | 8.0 | 9.0 |
| 20 | 6.5 | 5.0 | 5.5 | 7.0 | 4.5 | 6.0 | 9.5 | 6.5 | 8.0 | 11.0 | 7.5 | 9.0 |
| 21 | 6.5 | 5.0 | 6.0 | 7.0 | 5.5 | 6.0 | 9.0 | 6.0 | 7.5 | 12.0 | 8.0 | 10.0 |
| 22 | 7.0 | 6.0 | 6.5 | 7.5 | 5.5 | 6.5 | 8.0 | 6.0 | 7.0 | 11.5 | 8.5 | 10.0 |
| 23 | 7.0 | 5.5 | 6.0 | 5.5 | 3.5 | 5.0 | 7.0 | 6.0 | 6.5 | 10.0 | 8.5 | 9.5 |
| 24 | 5.5 | 5.0 | 5.5 | 5.0 | 3.5 | 4.5 | 9.0 | 6.5 | 7.0 | 10.0 | 8.5 | 9.0 |
| 25 | 6.0 | 5.0 | 5.0 | 6.5 | 4.5 | 5.5 | 8.5 | 5.5 | 7.0 | 9.5 | 7.5 | 8.5 |
| 26 | 6.0 | 4.5 | 5.0 | 6.0 | 5.0 | 5.5 | 10.5 | 6.0 | 8.0 | 12.0 | 8.0 | 9.5 |
| 27 | 5.0 | 3.5 | 4.5 | 6.5 | 5.0 | 5.5 | 10.5 | 6.5 | 8.5 | 11.0 | 8.5 | 10.0 |
| 28 | 5.5 | 4.5 | 5.0 | 8.0 | 5.0 | 6.5 | 9.0 | 7.0 | 8.0 | 9.0 | 7.5 | 8.5 |
| 29 | 6.5 | 4.5 | 5.0 | 7.0 | 5.5 | 6.5 | 11.0 | 7.0 | 9.0 | 8.0 | 7.0 | 7.5 |
| 30 | --- | --- | --- | 7.5 | 6.0 | 6.5 | 11.0 | 7.5 | 9.5 | 9.0 | 7.0 | 8.0 |
| 31 | --- | --- | --- | 7.5 | 5.5 | 6.5 | --- | --- | --- | 9.5 | 7.5 | 8.0 |
| MONTH | 7.0 | 3.5 | 5.5 | 8.5 | 3.5 | 6.0 | 11.0 | 5.0 | 7.5 | 12.0 | 6.5 | 9.0 |

## 12061500 SKOKOMISH RIVER NEAR POTLATCH, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 10.5 | 7.0 | 8.5 | 12.5 | 9.5 | 10.5 | 11.5 | 10.0 | 11.0 | 13.0 | 10.0 | 11.0 |
| 2 | 10.0 | 7.0 | 8.5 | 13.5 | 9.0 | 11.0 | 13.0 | 10.0 | 11.5 | 12.0 | 10.0 | 11.0 |
| 3 | 10.5 | 7.0 | 8.5 | 11.0 | 10.0 | 10.5 | 13.5 | 10.5 | 11.5 | 12.5 | 9.5 | 11.0 |
| 4 | 11.5 | 7.5 | 9.0 | 12.0 | 9.5 | 11.0 | 12.0 | 10.5 | 11.0 | 13.0 | 9.5 | 11.0 |
| 5 | 12.5 | 7.5 | 10.0 | 14.0 | 9.5 | 11.5 | 12.5 | 10.0 | 11.0 | 11.5 | 10.0 | 10.5 |
| 6 | 12.0 | 8.5 | 10.0 | 13.0 | 10.5 | 11.5 | 12.0 | 10.0 | 11.0 | 12.0 | 9.0 | 10.5 |
| 7 | 11.0 | 8.5 | 9.5 | 11.0 | 10.5 | 10.5 | 11.0 | 10.5 | 10.5 | 12.0 | 9.0 | 10.5 |
| 8 | 12.0 | 8.5 | 10.0 | 11.5 | 10.0 | 11.0 | 12.0 | 10.0 | 11.0 | 12.0 | 9.0 | 10.5 |
| 9 | 12.5 | 9.0 | 10.5 | 12.0 | 9.5 | 10.5 | 12.0 | 10.0 | 11.0 | 12.0 | 8.5 | 10.5 |
| 10 | 12.5 | 9.5 | 10.5 | 11.5 | 9.5 | 10.5 | 13.5 | 10.0 | 11.5 | 12.0 | 9.0 | 10.5 |
| 11 | 9.5 | 9.0 | 9.0 | 12.5 | 10.0 | 11.0 | 13.5 | 10.0 | 11.5 | 11.5 | 9.5 | 10.5 |
| 12 | 11.0 | 8.0 | 9.5 | 13.5 | 9.5 | 11.0 | 13.5 | 10.5 | 11.5 | 11.5 | 9.5 | 10.5 |
| 13 | 12.0 | 7.5 | 9.5 | 13.5 | 10.0 | 11.5 | 11.5 | 10.0 | 10.5 | 11.5 | 9.0 | 10.5 |
| 14 | 13.0 | 8.5 | 10.5 | 14.0 | 10.0 | 11.5 | 11.5 | 10.0 | 10.5 | 11.0 | 10.0 | 10.5 |
| 15 | 11.0 | 9.5 | 10.0 | 14.5 | 10.0 | 12.0 | 10.5 | 10.0 | 10.5 | 12.0 | 10.0 | 10.5 |
| 16 | 10.0 | 9.0 | 9.5 | 15.0 | 11.0 | 12.5 | 11.5 | 10.0 | 10.5 | 12.5 | 9.5 | 11.0 |
| 17 | 13.5 | 9.0 | 11.0 | 14.0 | 11.0 | 12.0 | 12.5 | 9.5 | 11.0 | 11.5 | 10.0 | 10.5 |
| 18 | 13.5 | 9.5 | 11.5 | 14.5 | 10.5 | 12.0 | 13.0 | 9.5 | 11.0 | 12.0 | 9.5 | 10.5 |
| 19 | 13.5 | 10.0 | 11.5 | 14.0 | 10.5 | 12.0 | 11.0 | 10.0 | 10.0 | 12.0 | 9.5 | 10.5 |
| 20 | 13.0 | 9.5 | 11.0 | 13.5 | 11.0 | 12.0 | 13.5 | 10.0 | 11.0 | 12.0 | 9.5 | 10.5 |
| 21 | 13.5 | 9.5 | 11.0 | 11.5 | 10.0 | 10.5 | 13.5 | 10.0 | 11.5 | 12.5 | 10.0 | 11.0 |
| 22 | 13.5 | 9.5 | 11.0 | 12.5 | 10.0 | 11.0 | 12.0 | 10.0 | 11.0 | 11.0 | 10.0 | 10.5 |
| 23 | 13.0 | 9.5 | 11.0 | 14.5 | 10.0 | 12.0 | 10.5 | 10.0 | 10.5 | 11.0 | 9.5 | 10.5 |
| 24 | 12.5 | 9.5 | 11.0 | 14.0 | 10.5 | 12.0 | 12.0 | 10.0 | 11.0 | 12.0 | 9.5 | 10.5 |
| 25 | 12.5 | 8.5 | 10.5 | 14.5 | 10.5 | 12.0 | 12.5 | 10.0 | 11.0 | 12.0 | 9.5 | 10.5 |
| 26 | 13.0 | 9.0 | 11.0 | 13.0 | 10.5 | 11.5 | 12.0 | 9.5 | 10.5 | 12.0 | 9.5 | 10.5 |
| 27 | 13.5 | 9.0 | 11.0 | 14.0 | 10.0 | 12.0 | 11.5 | 10.0 | 10.5 | 12.0 | 9.5 | 10.5 |
| 28 | 13.0 | 10.0 | 11.5 | 14.5 | 10.0 | 12.0 | 13.5 | 10.0 | 11.5 | 11.5 | 9.5 | 10.5 |
| 29 | 12.0 | 10.0 | 11.0 | 13.0 | 11.0 | 11.5 | 13.0 | 10.0 | 11.0 | 11.0 | 10.0 | 10.0 |
| 30 | 11.0 | 9.0 | 10.0 | 13.0 | 10.0 | 11.5 | 13.5 | 10.0 | 11.5 | 11.5 | 9.5 | 10.5 |
| 31 | --- | --- | --- | 14.0 | 10.0 | 11.5 | 12.5 | 10.0 | 11.0 | --- | --- | --- |
| MONTH | 13.5 | 7.0 | 10.0 | 15.0 | 9.0 | 11.5 | 13.5 | 9.5 | 11.0 | 13.0 | 8.5 | 10.5 |
| YEAR | 15.0 | 3.5 | 8.5 | | | | | | | | | |

## 12069550 BIG BEEF CREEK NEAR SEABECK, WA

LOCATION.--Lat 47°38'27", long 122°47'02", in NW¼SE¼ sec.22, T.25 N., R.1 W., Kitsap County, Hydrologic Unit 17110018, on left bank 1.1 mi (1.8 km) upstream from county road bridge across Big Beef Harbor and 1.9 mi (3.1 km) east of Seabeck.

DRAINAGE AREA.--13.8 mi² (35.7 km²).

PERIOD OF RECORD.--August 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records good. Water is by the University of Washington Research station to fill fish tanks and is returned to the creek above the gage. Flow may be partially regulated by Lake Symington 4.6 mi (7.4 km) upstream.

AVERAGE DISCHARGE.--7 years, 43.6 ft³/s (1.235 m³/s), 42.90 in/yr (1,090 mm/yr), 31,590 acre-ft/yr (39.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 757 ft³/s (21.4 m³/s) Dec. 7, 1970, gage height, 4.92 ft (1.500 m); maximum gage height, 5.74 ft (1.750 m) Jan. 16, 1974; minimum discharge, 2.3 ft³/s (0.065 m³/s) Aug. 30, 31, 1970, Sept. 2, 1974, but may have been less during period of no gage-height record Sept. 3-30, 1974; minimum gage height, 1.79 ft (0.546 m) Aug. 31, Sept. 1, 1972.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 275 ft³/s (7.79 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Oct. 29 | 1900 | *688 | 19.5 | *5.52 | 1.682 |
| Nov. 7 | 1200 | 305 | 8.64 | 4.50 | 1.372 |
| Nov. 15 | 1500 | 540 | 15.3 | 5.15 | 1.570 |
| Dec. 4 | 1000 | 620 | 17.6 | 5.35 | 1.631 |
| Dec. 26 | 1200 | 644 | 18.2 | 5.41 | 1.650 |
| Mar. 24 | 1500 | 466 | 13.2 | 4.96 | 1.512 |

Minimum discharge, 2.5 ft³/s (0.071 m³/s) Oct. 1; minimum gage height, 3.00 ft (0.914 m) Aug. 10-12, 14, 15, 28, 29, Sept. 7, 8.

REVISIONS.--The maximum discharge for the water year 1975 has been revised to 368 ft³/s (10.4 m³/s) Feb. 12, 1975, gage height, 4.92 ft (1.500 m), superseding figure published in the report for 1975.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.0 | 156 | 40 | 68 | 40 | 132 | 82 | 18 | 21 | 7.5 | 5.8 | 6.2 |
| 2 | 4.7 | 109 | 49 | 59 | 38 | 105 | 69 | 23 | 19 | 7.5 | 5.8 | 5.3 |
| 3 | 8.0 | 98 | 147 | 56 | 36 | 84 | 59 | 23 | 18 | 7.1 | 5.8 | 5.3 |
| 4 | 9.4 | 96 | 546 | 73 | 34 | 71 | 52 | 22 | 17 | 7.5 | 5.8 | 5.3 |
| 5 | 7.5 | 86 | 294 | 79 | 33 | 61 | 48 | 23 | 14 | 8.4 | 5.8 | 4.9 |
| 6 | 8.0 | 144 | 136 | 68 | 31 | 54 | 43 | 24 | 13 | 11 | 5.8 | 5.8 |
| 7 | 9.8 | 275 | 92 | 64 | 31 | 51 | 43 | 22 | 12 | 10 | 5.8 | 4.9 |
| 8 | 8.9 | 254 | 71 | 69 | 30 | 49 | 46 | 20 | 12 | 11 | 5.8 | 4.9 |
| 9 | 18 | 188 | 54 | 69 | 25 | 46 | 46 | 18 | 12 | 10 | 5.8 | 4.9 |
| 10 | 21 | 129 | 43 | 107 | 25 | 45 | 43 | 17 | 11 | 8.9 | 5.3 | 4.9 |
| 11 | 19 | 94 | 36 | 177 | 40 | 40 | 39 | 17 | 11 | 8.4 | 4.9 | 5.8 |
| 12 | 16 | 79 | 30 | 144 | 96 | 36 | 34 | 16 | 11 | 7.5 | 6.2 | 5.8 |
| 13 | 14 | 75 | 28 | 109 | 116 | 38 | 33 | 16 | 11 | 8.0 | 5.3 | 5.3 |
| 14 | 13 | 272 | 24 | 203 | 111 | 38 | 31 | 16 | 11 | 8.0 | 5.3 | 6.2 |
| 15 | 13 | 508 | 25 | 203 | 92 | 35 | 31 | 16 | 11 | 7.1 | 8.4 | 7.5 |
| 16 | 16 | 388 | 25 | 149 | 103 | 33 | 30 | 15 | 11 | 6.7 | 10 | 5.3 |
| 17 | 39 | 236 | 22 | 113 | 139 | 34 | 28 | 14 | 10 | 6.7 | 8.0 | 4.9 |
| 18 | 50 | 136 | 19 | 90 | 172 | 48 | 27 | 14 | 9.3 | 6.2 | 7.5 | 4.9 |
| 19 | 38 | 94 | 17 | 75 | 146 | 45 | 25 | 14 | 9.3 | 5.8 | 7.1 | 4.9 |
| 20 | 30 | 71 | 16 | 64 | 113 | 45 | 25 | 14 | 9.3 | 6.2 | 7.1 | 5.3 |
| 21 | 26 | 57 | 16 | 56 | 88 | 45 | 25 | 13 | 8.9 | 5.8 | 6.7 | 5.8 |
| 22 | 28 | 64 | 16 | 52 | 71 | 69 | 24 | 13 | 8.0 | 5.3 | 6.2 | 5.3 |
| 23 | 24 | 80 | 18 | 48 | 66 | 75 | 24 | 13 | 7.5 | 5.8 | 5.8 | 5.8 |
| 24 | 20 | 71 | 35 | 43 | 94 | 347 | 25 | 13 | 8.0 | 5.3 | 6.2 | 4.9 |
| 25 | 42 | 59 | 68 | 39 | 120 | 293 | 25 | 13 | 7.5 | 6.2 | 6.2 | 4.7 |
| 26 | 75 | 61 | 487 | 40 | 125 | 197 | 24 | 13 | 7.1 | 6.2 | 5.3 | 4.7 |
| 27 | 110 | 57 | 402 | 71 | 162 | 151 | 22 | 13 | 6.7 | 5.8 | 4.9 | 4.9 |
| 28 | 118 | 51 | 215 | 73 | 215 | 113 | 21 | 13 | 7.1 | 5.3 | 4.9 | 5.8 |
| 29 | 469 | 43 | 136 | 61 | 169 | 92 | 20 | 16 | 6.7 | 5.3 | 4.7 | 6.2 |
| 30 | 525 | 40 | 107 | 51 | --- | 77 | 19 | 19 | 6.7 | 6.2 | 6.7 | 5.8 |
| 31 | 283 | --- | 84 | 45 | --- | 86 | --- | 20 | --- | 6.2 | 6.7 | --- |
| TOTAL | 2066.3 | 4071 | 3298 | 2618 | 2561 | 2635 | 1063 | 521 | 327.1 | 222.9 | 191.6 | 162.2 |
| MEAN | 66.7 | 136 | 106 | 84.5 | 88.3 | 85.0 | 35.4 | 16.8 | 10.9 | 7.19 | 6.18 | 5.41 |
| MAX | 525 | 508 | 546 | 203 | 215 | 347 | 82 | 24 | 21 | 11 | 10 | 7.5 |
| MIN | 3.0 | 40 | 16 | 39 | 25 | 33 | 19 | 13 | 6.7 | 5.3 | 4.7 | 4.7 |
| CFSM | 4.83 | 9.85 | 7.68 | 6.12 | 6.40 | 6.16 | 2.57 | 1.22 | .79 | .52 | .45 | .39 |
| IN. | 5.57 | 10.97 | 8.89 | 7.06 | 6.90 | 7.10 | 2.87 | 1.40 | .88 | .60 | .52 | .44 |
| AC-FT | 4100 | 8070 | 6540 | 5190 | 5080 | 5230 | 2110 | 1030 | 649 | 442 | 380 | 322 |

CAL YR 1975 TOTAL 19454.3 MEAN 53.3 MAX 546 MIN 2.7 CFSM 3.86 IN 52.44 AC-FT 38590
WTR YR 1976 TOTAL 19737.1 MEAN 53.9 MAX 546 MIN 3.0 CFSM 3.91 IN 53.20 AC-FT 39150

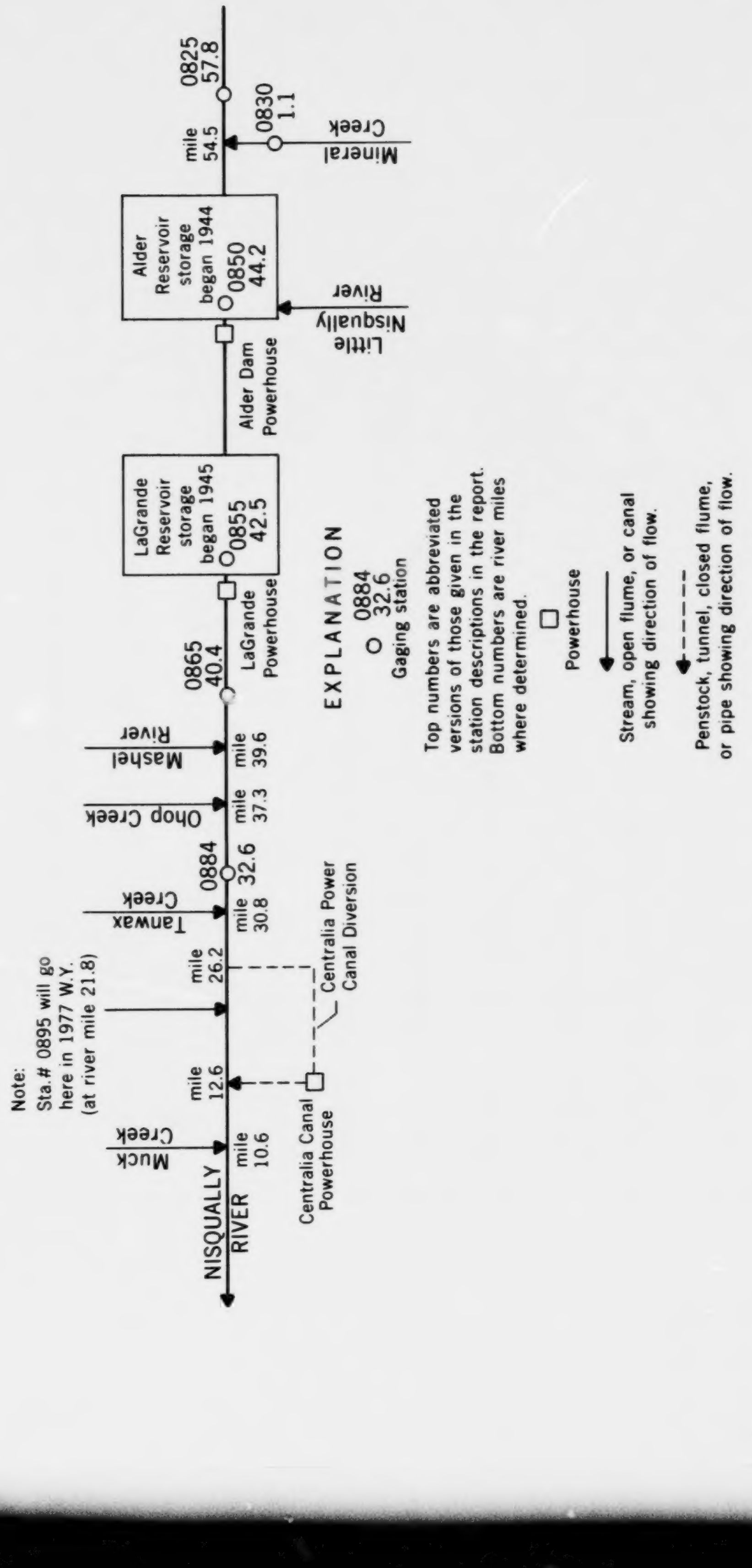
0825
57.8
mile
54.5
0830
1.1
Mineral Creek
Alder Reservoir storage began 1944
0850
44.2
Little Nisqually River
Alder Dam Powerhouse
LaGrande Reservoir storage began 1945
0855
42.5
LaGrande Powerhouse
0865
40.4
Mashel River
mile
39.6
Ohop Creek
mile
37.3
0884
32.6
Tanwax Creek
mile
30.8
Centralia Power Canal Diversion
mile
26.2
Note:
Sta.# 0895 will go here in 1977 W.Y. (at river mile 21.8)
mile
12.6
Centralia Canal Powerhouse
Muck Creek
mile
10.6
NISQUALLY RIVER
EXPLANATION
0884
32.6
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 8. Gaging stations in Nisqually River basin.

## 12082500 NISQUALLY RIVER NEAR NATIONAL, WA

LOCATION.--Lat 46°45'10", long 122°04'57", in SW¼SW¼ sec.29, T.15 N., R.6 E., Pierce County, Hydrologic Unit 17110015, on right bank 100 ft (30 m) downstream from old railroad bridge, 1.2 mi (1.9 km) west of National, 3.3 mi (5.3 km) upstream from Mineral Creek, and at mile 57.8 (93.0 km).

DRAINAGE AREA.--133 mi$^2$ (344 km$^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1942 to current year.

REVISED RECORDS.--WSP 1716: 1943(M), 1947(P), 1950-51, 1956(M). WRD Wash. 1974: 1968(M), 1969(M), 1972(P).

GAGE.--Water-stage recorder. Altitude of gage is 1,450 ft (442 m), from river-profile map.

REMARKS.--Water-discharge records good, except those for Dec. 12-25, Jan. 1-14, 20-28, Feb. 24 to Mar. 10, which are fair. Small diversions for domestic use. Slight regulation at low flow by powerplant of Mount Rainier National Park on Paradise River.

AVERAGE DISCHARGE.--34 years, 792 ft$^3$/s (22.43 m$^3$/s), 80.87 in/yr (2,054 mm/yr), 573,800 acre-ft/yr (707 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft$^3$/s (425 m$^3$/s) Jan. 15, 1974 from rating curve extended above 7,000 ft$^3$/s (198 m$^3$/s) on basis of slope-area measurement of peak flow; maximum gage height, 11.77 ft (3.587 m) Nov. 23, 1959; minimum discharge, 108 ft$^3$/s (3.06 m$^3$/s) Dec. 1, 3, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,600 ft$^3$/s (73.6 m$^3$/s) and maximum (*) from rating curve extended above 4,300 ft$^3$/s (122 m$^3$/s) on basis of slope-area measurement of peak flow:

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 1 | 2100 | 9,420 | 267 | 9.17 | 2.795 | Dec. 26 | 1530 | 3,600 | 102 | 6.07 | 1.850 |
| Dec. 4 | 0430 | *13,200 | 374 | *10.66 | 3.249 | Jan. 15 | 1900 | 7,940 | 225 | 8.47 | 2.582 |
| Dec. 8 | 0430 | 3,280 | 92.9 | 5.83 | 1.777 | | | | | | |

Minimum discharge, 245 ft$^3$/s (6.94 m$^3$/s) Oct. 14, gage height, 1.92 ft (0.585 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 444 | 1160 | 5660 | 1300 | 870 | 450 | 473 | 1410 | 747 | 991 | 746 | 794 |
| 2 | 476 | 1250 | 7300 | 1050 | 835 | 420 | 451 | 1950 | 698 | 900 | 734 | 680 |
| 3 | 500 | 1520 | 8380 | 900 | 803 | 400 | 448 | 1630 | 649 | 888 | 770 | 630 |
| 4 | 440 | 1390 | 8720 | 1500 | 742 | 390 | 480 | 1420 | 620 | 930 | 728 | 625 |
| 5 | 348 | 1270 | 3440 | 1350 | 671 | 380 | 567 | 1300 | 603 | 992 | 680 | 635 |
| 6 | 348 | 1230 | 2340 | 1100 | 643 | 370 | 710 | 1200 | 624 | 1090 | 746 | 545 |
| 7 | 282 | 1170 | 2490 | 1100 | 620 | 360 | 731 | 1240 | 672 | 1200 | 932 | 440 |
| 8 | 260 | 1000 | 3090 | 1300 | 593 | 360 | 994 | 1490 | 824 | 1720 | 830 | 404 |
| 9 | 280 | 872 | 2490 | 1100 | 559 | 370 | 1010 | 1780 | 884 | 1310 | 734 | 404 |
| 10 | 300 | 770 | 1940 | 960 | 528 | 390 | 1010 | 1900 | 973 | 1020 | 704 | 444 |
| 11 | 276 | 680 | 1590 | 960 | 525 | 380 | 1190 | 1700 | 946 | 914 | 734 | 520 |
| 12 | 260 | 625 | 1300 | 880 | 597 | 369 | 1070 | 1440 | 932 | 926 | 746 | 490 |
| 13 | 252 | 595 | 1050 | 800 | 605 | 364 | 951 | 1500 | 873 | 860 | 728 | 420 |
| 14 | 252 | 1010 | 800 | 1400 | 583 | 361 | 855 | 1470 | 770 | 878 | 610 | 472 |
| 15 | 380 | 1810 | 850 | 5280 | 548 | 353 | 789 | 1330 | 877 | 944 | 692 | 452 |
| 16 | 303 | 1440 | 820 | 5060 | 720 | 366 | 690 | 1360 | 1740 | 1050 | 640 | 468 |
| 17 | 379 | 1120 | 760 | 3010 | 752 | 431 | 635 | 1340 | 1560 | 1080 | 545 | 456 |
| 18 | 567 | 926 | 720 | 2170 | 709 | 505 | 596 | 1140 | 1490 | 1020 | 495 | 464 |
| 19 | 680 | 800 | 690 | 1660 | 637 | 503 | 574 | 1050 | 1540 | 968 | 472 | 555 |
| 20 | 645 | 704 | 660 | 1300 | 585 | 491 | 697 | 955 | 1410 | 974 | 595 | 650 |
| 21 | 595 | 640 | 640 | 1100 | 558 | 466 | 640 | 918 | 1230 | 914 | 580 | 698 |
| 22 | 540 | 620 | 800 | 1050 | 556 | 546 | 614 | 972 | 1090 | 812 | 610 | 640 |
| 23 | 472 | 776 | 1000 | 1000 | 576 | 543 | 590 | 999 | 976 | 908 | 620 | 525 |
| 24 | 432 | 1330 | 1500 | 900 | 600 | 736 | 663 | 989 | 907 | 992 | 686 | 530 |
| 25 | 555 | 1420 | 1300 | 820 | 550 | 646 | 669 | 993 | 854 | 968 | 764 | 530 |
| 26 | 698 | 1560 | 2810 | 780 | 500 | 595 | 622 | 937 | 771 | 896 | 620 | 540 |
| 27 | 620 | 1320 | 2380 | 1300 | 540 | 560 | 603 | 1140 | 797 | 818 | 525 | 545 |
| 28 | 610 | 1090 | 1760 | 1200 | 510 | 531 | 647 | 1090 | 924 | 788 | 595 | 595 |
| 29 | 1270 | 926 | 1920 | 1050 | 480 | 484 | 757 | 967 | 1080 | 842 | 650 | 630 |
| 30 | 2010 | 1180 | 1880 | 984 | --- | 478 | 1040 | 892 | 1030 | 848 | 686 | 605 |
| 31 | 1470 | --- | 1570 | 915 | --- | 516 | --- | 809 | --- | 776 | 770 | --- |
| TOTAL | 16944 | 32204 | 72650 | 45279 | 17995 | 14114 | 21766 | 39311 | 29091 | 30217 | 20967 | 16386 |
| MEAN | 547 | 1073 | 2344 | 1461 | 621 | 455 | 726 | 1268 | 970 | 975 | 676 | 546 |
| MAX | 2010 | 1810 | 8720 | 5280 | 870 | 736 | 1190 | 1950 | 1740 | 1720 | 932 | 794 |
| MIN | 252 | 595 | 640 | 780 | 480 | 353 | 448 | 809 | 603 | 776 | 472 | 404 |
| CFSM | 4.11 | 8.07 | 17.6 | 11.0 | 4.67 | 3.42 | 5.46 | 9.53 | 7.29 | 7.33 | 5.08 | 4.11 |
| IN. | 4.74 | 9.01 | 20.32 | 12.66 | 5.03 | 3.95 | 6.09 | 11.00 | 8.14 | 8.45 | 5.86 | 4.58 |
| AC-FT | 33610 | 63880 | 144100 | 89810 | 35690 | 28000 | 43170 | 77970 | 57700 | 59940 | 41590 | 32500 |

CAL YR 1975 TOTAL 355050 MEAN 973 MAX 8720 MIN 252 CFSM 7.32 IN 99.31 AC-FT 704200
WTR YR 1976 TOTAL 356924 MEAN 975 MAX 8720 MIN 252 CFSM 7.33 IN 99.83 AC-FT 708000

## 12082500 NISQUALLY RIVER NEAR NATIONAL, WA--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1951 to current year.

INSTRUMENTATION.--Temperature recorder since October 1951.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 18.5°C July 13, 1961, July 3, 1970; minimum, (1961-63, 1965-76) 0.0°C on many days during winter months of most year.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 12.5°C Oct. 1; minimum, 1.0°C Feb. 5, 6.

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 12.5 | 6.0 | 9.0 | 6.0 | 5.5 | 6.0 | 3.5 | 1.5 | 2.5 | 4.0 | 4.0 | 4.0 |
| 2 | 10.5 | 7.0 | 8.5 | 6.0 | 6.0 | 6.0 | 4.5 | 3.5 | 4.0 | 4.0 | 4.0 | 4.0 |
| 3 | 9.0 | 7.5 | 8.5 | 7.0 | 6.0 | 6.5 | 4.5 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| 4 | 10.5 | 7.0 | 8.5 | 6.5 | 6.0 | 6.5 | 4.5 | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 |
| 5 | 9.0 | 7.5 | 8.0 | 6.5 | 6.0 | 6.5 | 3.5 | 3.5 | 3.5 | 4.0 | 3.5 | 3.5 |
| 6 | 9.0 | 6.0 | 7.5 | 6.0 | 5.0 | 6.0 | 3.5 | 3.5 | 3.5 | 4.0 | 3.5 | 3.5 |
| 7 | 8.5 | 5.5 | 7.0 | 5.5 | 5.0 | 5.5 | 4.0 | 3.5 | 4.0 | 3.5 | 3.5 | 3.5 |
| 8 | 9.5 | 6.0 | 8.0 | 5.0 | 4.0 | 5.0 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | 3.5 |
| 9 | --- | --- | --- | 5.0 | 4.5 | 5.0 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | 3.5 |
| 10 | --- | --- | --- | 5.0 | 4.5 | 5.0 | 4.5 | 4.0 | 4.0 | 4.0 | 3.5 | 4.0 |
| 11 | 8.5 | 7.0 | 8.0 | 5.0 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 |
| 12 | 8.0 | 7.5 | 8.0 | 4.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 | 3.5 | 4.0 |
| 13 | 8.5 | 8.0 | 8.0 | 5.0 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | 3.5 |
| 14 | 9.0 | 7.5 | 8.5 | 5.0 | 5.0 | 5.0 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | 3.5 |
| 15 | 8.5 | 7.5 | 8.0 | 5.5 | 4.0 | 4.5 | 4.0 | 4.0 | 4.0 | 3.5 | 3.0 | 3.5 |
| 16 | 8.5 | 7.5 | 8.0 | 4.0 | 3.5 | 3.5 | 4.0 | 4.0 | 4.0 | 3.5 | 3.0 | 3.5 |
| 17 | 8.5 | 8.0 | 8.0 | 4.0 | 3.5 | 3.5 | 4.5 | 4.0 | 4.5 | 3.5 | 3.5 | 3.5 |
| 18 | 8.0 | 7.0 | 8.0 | 3.5 | 3.0 | 3.5 | 4.5 | 4.5 | 4.5 | 4.0 | 3.5 | 4.0 |
| 19 | --- | --- | --- | 3.5 | 3.0 | 3.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 |
| 20 | 8.0 | 7.5 | 8.0 | 4.0 | 2.5 | 3.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 |
| 21 | 8.0 | 6.5 | 7.5 | 4.5 | 3.5 | 4.0 | 4.5 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 |
| 22 | 8.0 | 7.5 | 7.5 | 4.5 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 |
| 23 | 7.5 | 7.0 | 7.5 | 4.5 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 |
| 24 | 7.0 | 6.5 | 7.0 | 5.0 | 4.0 | 4.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 |
| 25 | 6.5 | 5.0 | 6.0 | 4.0 | 3.5 | 4.0 | 4.5 | 4.0 | 4.5 | 4.0 | 4.0 | 4.0 |
| 26 | 6.5 | 6.0 | 6.5 | 4.5 | 4.0 | 4.0 | 4.5 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| 27 | 6.5 | 6.0 | 6.5 | 4.0 | 3.5 | 4.0 | 4.5 | 4.0 | 4.5 | 4.0 | 4.0 | 4.0 |
| 28 | 6.5 | 5.5 | 6.0 | --- | --- | --- | 4.5 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| 29 | 6.0 | 5.0 | 5.5 | --- | --- | --- | 4.0 | 4.0 | 4.0 | 4.5 | 3.0 | 4.0 |
| 30 | 6.0 | 5.5 | 5.5 | --- | --- | --- | 4.5 | 4.0 | 4.5 | 4.0 | 3.0 | 3.5 |
| 31 | 6.0 | 5.0 | 5.5 | --- | --- | --- | 4.5 | 4.0 | 4.0 | 4.0 | 3.0 | 3.5 |
| MONTH | 12.5 | 5.0 | 7.5 | 7.0 | 2.5 | 4.5 | 4.5 | 1.5 | 4.0 | 4.5 | 3.0 | 4.0 |

## 12082500 NISQUALLY RIVER NEAR NATIONAL, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 4.0 | 3.0 | 3.5 | 4.0 | 2.5 | 3.0 | 5.0 | 4.0 | 5.0 | 8.5 | 6.5 | 7.5 |
| 2 | 3.5 | 3.0 | 3.5 | 3.5 | 2.0 | 3.0 | 7.0 | 3.5 | 5.0 | 6.5 | 5.0 | 5.5 |
| 3 | 3.5 | 3.0 | 3.0 | 3.5 | 2.0 | 3.0 | 8.0 | 5.0 | 6.5 | 8.0 | 4.5 | 6.0 |
| 4 | 3.0 | 2.0 | 2.5 | 3.5 | 2.0 | 2.5 | --- | --- | --- | 6.5 | 5.0 | 5.5 |
| 5 | 1.5 | 1.0 | 1.5 | 4.0 | 2.0 | 3.0 | --- | --- | --- | 6.0 | 5.5 | 5.5 |
| 6 | 2.0 | 1.0 | 1.5 | 5.0 | 3.0 | 4.0 | 8.0 | 6.5 | 7.0 | 7.5 | 5.0 | 6.0 |
| 7 | 3.0 | 1.5 | 2.0 | 4.5 | 3.5 | 4.0 | 7.0 | 6.0 | 6.5 | 8.0 | 6.0 | 7.0 |
| 8 | 3.0 | 2.0 | 2.5 | 5.5 | 4.5 | 4.5 | 7.0 | 6.0 | 6.5 | 9.5 | 6.5 | 7.5 |
| 9 | 3.0 | 2.5 | 3.0 | 5.5 | 4.5 | 5.0 | 8.0 | 5.0 | 6.0 | 10.0 | 5.0 | 7.0 |
| 10 | 3.5 | 2.5 | 3.0 | 5.0 | 4.5 | 5.0 | 8.5 | 5.5 | 6.5 | 7.0 | 5.0 | 5.5 |
| 11 | 3.0 | 3.0 | 3.0 | 5.0 | 3.5 | 4.5 | 7.5 | 6.0 | 6.5 | 7.5 | 4.5 | 5.5 |
| 12 | 4.0 | 3.0 | 3.5 | 5.0 | 4.5 | 5.0 | 6.5 | 5.5 | 6.0 | 8.5 | 5.0 | 6.0 |
| 13 | 4.5 | 3.5 | 4.0 | 5.5 | 5.0 | 5.0 | 6.5 | 5.5 | 6.0 | 8.5 | 6.5 | 7.0 |
| 14 | 4.0 | 4.0 | 4.0 | 5.5 | 5.0 | 5.5 | 5.5 | 5.0 | 5.5 | 6.5 | 5.0 | 5.5 |
| 15 | 4.0 | 3.0 | 3.5 | 6.5 | 5.5 | 5.5 | 5.0 | 4.5 | 4.5 | 7.5 | 5.5 | 6.0 |
| 16 | 3.5 | 3.5 | 3.5 | 6.5 | 5.5 | 6.0 | 5.5 | 4.5 | 5.0 | 7.5 | 6.5 | 7.0 |
| 17 | 3.5 | 2.5 | 3.0 | 6.5 | 5.5 | 6.0 | 5.5 | 5.0 | 5.5 | 7.5 | 6.0 | 6.5 |
| 18 | 3.0 | 2.0 | 2.5 | 6.0 | 5.0 | 5.5 | 6.0 | 5.0 | 5.5 | 6.5 | 5.5 | 6.0 |
| 19 | 3.0 | 2.5 | 3.0 | 5.0 | 3.5 | 4.5 | 6.5 | 5.5 | 5.5 | 7.0 | 6.0 | 6.5 |
| 20 | 4.0 | 3.0 | 3.5 | 4.5 | 4.0 | 4.0 | 6.5 | 6.0 | 6.0 | 7.0 | 5.5 | 6.0 |
| 21 | 4.5 | 3.0 | 3.5 | 6.0 | 4.0 | 4.5 | 7.0 | 5.0 | 5.5 | 8.0 | 6.0 | 6.5 |
| 22 | 5.0 | 3.5 | 4.5 | 5.5 | 5.0 | 5.0 | 6.5 | 5.5 | 6.0 | 7.5 | 6.5 | 7.0 |
| 23 | 5.5 | 4.5 | 5.0 | 5.0 | 4.0 | 4.5 | 6.0 | 5.5 | 5.5 | 7.5 | 6.5 | 7.0 |
| 24 | 4.5 | 3.5 | 4.0 | 5.0 | 4.5 | 4.5 | 6.0 | 5.5 | 5.5 | --- | --- | --- |
| 25 | 3.5 | 3.0 | 3.0 | 5.0 | 4.0 | 4.5 | 6.0 | 4.5 | 5.0 | --- | --- | --- |
| 26 | 3.5 | 3.0 | 3.5 | 5.0 | 4.5 | 4.5 | 6.5 | 5.0 | 5.5 | --- | --- | --- |
| 27 | 3.5 | 3.0 | 3.0 | 4.5 | 4.0 | 4.5 | 7.0 | 5.0 | 6.0 | --- | --- | --- |
| 28 | 3.5 | 2.5 | 3.0 | 5.0 | 4.0 | 4.5 | 7.0 | 6.0 | 6.5 | 7.0 | 5.5 | 6.0 |
| 29 | 4.0 | 2.5 | 3.5 | 6.0 | 4.5 | 5.0 | 8.5 | 6.0 | 6.5 | 6.5 | 5.5 | 6.0 |
| 30 | --- | --- | --- | 7.5 | 5.5 | 6.5 | 9.0 | 6.5 | 7.5 | 7.0 | 5.5 | 6.0 |
| 31 | --- | --- | --- | 7.0 | 5.0 | 5.5 | --- | --- | --- | 6.5 | 5.5 | 6.0 |
| MONTH | 5.5 | 1.0 | 3.0 | 7.5 | 2.0 | 4.5 | 9.0 | 3.5 | 6.0 | 10.0 | 4.5 | 6.5 |

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 7.0 | 5.0 | 6.0 | 9.0 | 7.5 | 8.5 | | | | | | |
| 2 | 8.0 | 5.5 | 6.5 | 9.0 | 7.5 | 8.0 | | | | | | |
| 3 | 8.0 | 6.0 | 7.0 | 9.0 | 8.0 | 9.0 | | | | | | |
| 4 | 9.0 | 6.5 | 7.5 | 10.5 | 8.5 | 9.0 | | | | | | |
| 5 | 10.0 | 6.5 | 8.0 | 12.0 | 9.5 | 10.0 | | | | | | |
| 6 | 9.5 | 7.5 | 8.5 | 12.0 | 10.0 | 11.0 | | | | | | |
| 7 | 11.0 | 8.0 | 9.0 | --- | --- | --- | | | | | | |
| 8 | 10.5 | 8.0 | 9.0 | --- | --- | --- | | | | | | |
| 9 | 11.5 | 7.5 | 8.5 | --- | --- | --- | | | | | | |
| 10 | 10.5 | 8.0 | 9.0 | --- | --- | --- | | | | | | |
| 11 | 8.5 | 7.0 | 7.5 | --- | --- | --- | | | | | | |
| 12 | 8.5 | 6.5 | 7.5 | --- | --- | --- | | | | | | |
| 13 | 8.5 | 6.0 | 7.0 | --- | --- | --- | | | | | | |
| 14 | 10.5 | 6.5 | 8.0 | --- | --- | --- | | | | | | |
| 15 | 10.0 | 8.5 | 9.0 | --- | --- | --- | | | | | | |
| 16 | 8.5 | 6.5 | 7.5 | --- | --- | --- | | | | | | |
| 17 | 11.0 | 6.0 | 8.0 | --- | --- | --- | | | | | | |
| 18 | 11.0 | 7.5 | 9.0 | --- | --- | --- | | | | | | |
| 19 | 10.0 | 7.5 | 8.5 | --- | --- | --- | | | | | | |
| 20 | 9.5 | 7.0 | 8.0 | --- | --- | --- | | | | | | |
| 21 | 9.0 | 8.0 | 8.5 | --- | --- | --- | | | | | | |
| 22 | 9.0 | 7.5 | 8.0 | --- | --- | --- | | | | | | |
| 23 | 8.0 | 7.5 | 7.5 | --- | --- | --- | | | | | | |
| 24 | 8.0 | 7.5 | 8.0 | --- | --- | --- | | | | | | |
| 25 | 8.0 | 7.0 | 8.0 | --- | --- | --- | | | | | | |
| 26 | 8.0 | 7.0 | 8.0 | --- | --- | --- | | | | | | |
| 27 | --- | --- | --- | --- | --- | --- | | | | | | |
| 28 | --- | --- | --- | --- | --- | --- | | | | | | |
| 29 | 11.5 | 9.5 | 10.0 | --- | --- | --- | | | | | | |
| 30 | 9.5 | 8.5 | 9.0 | --- | --- | --- | | | | | | |
| 31 | --- | --- | --- | --- | --- | --- | | | | | | |
| MONTH | 11.5 | 5.0 | 8.0 | --- | --- | --- | | | | | | |
| YEAR | 12.5 | 1.0 | 5.5 | | | | | | | | | |

## 12083000 MINERAL CREEK NEAR MINERAL, WA

LOCATION.--Lat 46°44'15", long 122°08'33", in NE¼SW¼ sec. 35, T.15 N., R.5 E., Lewis County, Hydrologic Unit 17110015, on right bank 0.5 mi (0.8 km) downstream from CMSTP&P Railroad bridge, 2.3 mi (3.7 km) northeast of Mineral, and at mile 1.1 (1.8 km).

DRAINAGE AREA.--75.2 $mi^2$ (194.8 $km^2$).

PERIOD OF RECORD.--June 1942 to current year.

REVISED RECORDS.--WSP 1932: Drainage area. WRD Wash. 1974, 1971(P).

GAGE.--Water-stage recorder. Altitude of gage is 1,340 ft (408 m), from topographic map.

REMARKS.--Records good except those for period Oct. 30 to Dec. 1, which are poor. No regulation or diversion above station.

AVERAGE DISCHARGE.--34 years, 385 $ft^3/s$ (10.90 $m^3/s$) 69.53 in/yr (1,766 mm/yr), 278,900 acre-ft/yr (344 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,740 $ft^3/s$ (276 $m^3/s$) Jan. 20, 1972, gage height, 10.87 ft (3.313 m); minimum, 16 $ft^3/s$ (0.45 $m^3/s$) Aug. 30, 31, 1970; minimum gage height, 1.40 ft (0.427 m) Sept. 22, 23, 1950.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,700 $ft^3/s$ (76.5 $m^3/s$) and maximum (*):

|  |  | Discharge |  | Gage height |  |  |  | Discharge |  | Gage height |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | ($ft^3/s$) | ($m^3/s$) | (ft) | (m) | Date | Time | ($ft^3/s$) | ($m^3/s$) | (ft) | (m) |
| Dec. 4 | 0415 | *8,020 | 227 | *10.73 | 3.271 | Jan. 15 | 0415 | 4,500 | 127 | 9.10 | 2.774 |
| Dec. 26 | 0900 | 3,250 | 92.0 | 8.21 | 2.502 |  |  |  |  |  |  |

Minimum discharge, 35 $ft^3/s$ (0.99 $m^3/s$) Oct. 1-3; minimum gage height, 3.28 ft (1.000 m) Sept. 30.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 35 | 715 | 2000 | 836 | 467 | 310 | 460 | 1040 | 268 | 104 | 46 | 65 |
| 2 | 35 | 638 | 4090 | 686 | 419 | 271 | 390 | 1450 | 252 | 98 | 46 | 62 |
| 3 | 67 | 659 | 4940 | 614 | 381 | 245 | 370 | 1130 | 227 | 95 | 48 | 59 |
| 4 | 130 | 568 | 5580 | 955 | 339 | 222 | 400 | 923 | 210 | 95 | 45 | 57 |
| 5 | 100 | 484 | 2840 | 1100 | 295 | 210 | 467 | 800 | 196 | 91 | 47 | 61 |
| 6 | 127 | 568 | 1800 | 836 | 271 | 204 | 560 | 716 | 198 | 87 | 54 | 74 |
| 7 | 91 | 736 | 1870 | 745 | 255 | 202 | 565 | 740 | 200 | 97 | 139 | 63 |
| 8 | 85 | 604 | 1830 | 892 | 242 | 196 | 710 | 818 | 200 | 182 | 158 | 57 |
| 9 | 121 | 496 | 1510 | 822 | 227 | 202 | 728 | 881 | 193 | 124 | 95 | 54 |
| 10 | 127 | 420 | 1170 | 836 | 210 | 225 | 710 | 874 | 191 | 105 | 77 | 51 |
| 11 | 103 | 360 | 920 | 1090 | 231 | 222 | 930 | 782 | 187 | 95 | 68 | 50 |
| 12 | 94 | 326 | 738 | 836 | 488 | 206 | 794 | 650 | 194 | 93 | 62 | 56 |
| 13 | 85 | 326 | 626 | 686 | 439 | 196 | 650 | 626 | 189 | 86 | 62 | 53 |
| 14 | 85 | 898 | 515 | 2450 | 423 | 194 | 560 | 570 | 166 | 80 | 63 | 78 |
| 15 | 121 | 1290 | 495 | 4170 | 381 | 191 | 580 | 497 | 173 | 76 | 94 | 89 |
| 16 | 109 | 876 | 430 | 2780 | 944 | 210 | 500 | 475 | 227 | 73 | 106 | 68 |
| 17 | 127 | 624 | 345 | 1900 | 986 | 335 | 439 | 459 | 210 | 71 | 85 | 59 |
| 18 | 175 | 484 | 320 | 1440 | 888 | 535 | 399 | 395 | 194 | 69 | 95 | 56 |
| 19 | 214 | 400 | 310 | 1090 | 644 | 488 | 388 | 353 | 189 | 65 | 90 | 53 |
| 20 | 214 | 340 | 295 | 867 | 511 | 459 | 560 | 313 | 171 | 63 | 110 | 49 |
| 21 | 220 | 306 | 275 | 716 | 431 | 415 | 511 | 292 | 157 | 61 | 100 | 47 |
| 22 | 205 | 310 | 307 | 674 | 391 | 565 | 463 | 286 | 145 | 58 | 92 | 48 |
| 23 | 181 | 478 | 455 | 605 | 435 | 570 | 427 | 280 | 135 | 57 | 85 | 48 |
| 24 | 163 | 484 | 899 | 525 | 479 | 979 | 555 | 292 | 129 | 55 | 80 | 47 |
| 25 | 250 | 472 | 878 | 467 | 479 | 800 | 540 | 304 | 124 | 53 | 95 | 45 |
| 26 | 355 | 638 | 2680 | 427 | 423 | 660 | 479 | 268 | 115 | 52 | 105 | 42 |
| 27 | 306 | 562 | 2180 | 909 | 471 | 590 | 463 | 298 | 110 | 51 | 85 | 41 |
| 28 | 340 | 460 | 1470 | 830 | 431 | 550 | 497 | 274 | 109 | 49 | 77 | 41 |
| 29 | 1310 | 385 | 1290 | 728 | 363 | 490 | 590 | 262 | 111 | 48 | 71 | 41 |
| 30 | 1730 | 743 | 1250 | 610 | --- | 450 | 812 | 283 | 106 | 48 | 70 | 39 |
| 31 | 1030 | --- | 1040 | 530 | --- | 550 | --- | 262 | --- | 48 | 68 | --- |
| TOTAL | 8335 | 16650 | 45348 | 32652 | 12944 | 11942 | 16497 | 17593 | 5276 | 2429 | 2518 | 1653 |
| MEAN | 269 | 555 | 1463 | 1053 | 446 | 385 | 550 | 568 | 176 | 78.4 | 81.2 | 55.1 |
| MAX | 1730 | 1290 | 5580 | 4170 | 986 | 979 | 930 | 1450 | 268 | 182 | 158 | 89 |
| MIN | 35 | 306 | 275 | 427 | 210 | 191 | 370 | 262 | 106 | 48 | 45 | 39 |
| CFSM | 3.58 | 7.38 | 19.5 | 14.0 | 5.93 | 5.12 | 7.31 | 7.55 | 2.34 | 1.04 | 1.08 | .73 |
| IN. | 4.12 | 8.24 | 22.43 | 16.15 | 6.40 | 5.91 | 8.16 | 8.70 | 2.61 | 1.20 | 1.25 | .82 |
| AC-FT | 16530 | 33030 | 89950 | 64770 | 25670 | 23690 | 32720 | 34900 | 10460 | 4820 | 4990 | 3280 |

CAL YR 1975 TOTAL 166482 MEAN 456 MAX 5580 MIN 34 CFSM 6.06 IN 82.35 AC-FT 330200
WTR YR 1976 TOTAL 173837 MEAN 475 MAX 5580 MIN 35 CFSM 6.32 IN 85.99 AC-FT 344800

## 12083400 NISQUALLY RIVER AT ELBE, WA

LOCATION.--Lat 46°45'47", long 122°11'27", in NW¼NW¼ sec.28, T.15 N., R.5 E., Pierce County, Hydrologic Unit 17110015, at State Highway 7 crossing, at Elbe and at mile 51.7 (83.2 km).

DRAINAGE AREA.--22.6 mi² (58.5 km²).

PERIOD OF RECORD.--Water years 1973 to current year.

### WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | | | |
| 19... | 1105 | 2650 | 45 | 6.8 | 4.8 | -- | 5 | 11.9 | 221 | -- |
| JAN , 1974 | | | | | | | | | | |
| 16... | 1055 | 13400 | -- | -- | 4.4 | -- | -- | 12.0 | -- | -- |
| FEB | | | | | | | | | | |
| 21... | 1000 | 1060 | 52 | 7.1 | 4.4 | -- | 15 | 12.2 | 9 | -- |
| JUN | | | | | | | | | | |
| 19... | 0850 | 2850 | 35 | 6.8 | 6.8 | -- | 20 | 11.3 | 55 | -- |
| SEP | | | | | | | | | | |
| 18... | 1145 | 508 | 55 | 7.2 | 9.5 | -- | 80 | 10.9 | 180 | -- |
| DEC | | | | | | | | | | |
| 11... | 0830 | 1510 | 56 | 7.1 | 6.0 | -- | 5 | 11.5 | 91 | -- |
| JAN , 1975 | | | | | | | | | | |
| 20... | 1400 | 3090 | -- | -- | 4.6 | -- | -- | 12.5 | -- | -- |
| MAR | | | | | | | | | | |
| 06... | 0850 | 1490 | 55 | 6.8 | 2.4 | -- | 1 | 12.8 | 3 | -- |
| MAY | | | | | | | | | | |
| 08... | 0920 | 980 | 45 | 7.4 | 5.3 | -- | 8 | 12.6 | 24 | -- |
| AUG | | | | | | | | | | |
| 08... | 0935 | 732 | 55 | 7.2 | 9.5 | -- | 50 | 11.1 | B3 | -- |
| OCT | | | | | | | | | | |
| 14... | 1155 | 360 | 80 | 6.7 | 9.7 | 21 | 9 | 11.4 | 460 | <10 |
| 20... | 1330 | 839 | 60 | 7.2 | 8.3 | 42 | 13 | 11.8 | B600 | <10 |
| NOV | | | | | | | | | | |
| 03... | 1135 | 2360 | 47 | 7.3 | 9.4 | 33 | 13 | 11.1 | B600 | <5 |
| 17... | 1240 | 1730 | 57 | 7.2 | 5.1 | 29 | 6 | 12.4 | B350 | B2 |
| 20... | 0945 | 1060 | 50 | 7.0 | 3.7 | -- | 1 | 12.8 | 36 | -- |
| DEC | | | | | | | | | | |
| 01... | 1200 | 7820 | 39 | 7.2 | 4.6 | 104 | 170 | 11.8 | B3500 | B50 |
| 03... | 1005 | 13500 | -- | -- | 5.5 | -- | 95 | 11.7 | -- | -- |
| 15... | 1225 | 1280 | 52 | 6.8 | 4.0 | 21 | 6 | 12.7 | B150 | <2 |
| JAN , 1976 | | | | | | | | | | |
| 12... | 1125 | 1700 | 59 | 7.3 | 3.0 | 21 | 8 | 12.7 | B100 | B6 |
| 26... | 1125 | 1200 | 53 | 7.0 | 3.9 | 46 | 9 | 12.8 | B30 | <5 |
| FEB | | | | | | | | | | |
| 02... | 1140 | 1260 | 53 | 7.3 | 3.4 | 17 | 4 | 13.1 | >60 | B8 |
| 17... | 1200 | 1750 | 50 | 7.4 | 4.0 | 25 | 12 | 12.5 | B100 | <5 |
| 19... | 0900 | 1300 | 61 | 7.5 | 2.5 | -- | 1 | 12.8 | 46 | -- |
| MAR | | | | | | | | | | |
| 01... | 1100 | 760 | 69 | 7.2 | 2.7 | 21 | 5 | 13.2 | B50 | <2 |
| 16... | 1130 | 562 | 68 | 7.3 | 7.0 | 8 | 3 | 12.6 | 56 | <2 |

B Results based upon colony counts outside the ideal range.

12083400 NISQUALLY RIVER AT ELBE, WA--Continued

WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | ALKA-LINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN , 1974 | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN , 1975 | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| OCT | | | | | | | | | | |
| 14... | 26 | 0 | 7.2 | 2.0 | 4.4 | 1.2 | 34 | 28 | 11 | 6.6 |
| 20... | 21 | 0 | 6.2 | 1.3 | 3.2 | .9 | 28 | 23 | 2.8 | 4.3 |
| NOV | | | | | | | | | | |
| 03... | 24 | 1 | 7.3 | 1.4 | 2.3 | .6 | 28 | 23 | 2.2 | 3.2 |
| 17... | 22 | 2 | 6.9 | 1.2 | 2.7 | .7 | 25 | 21 | 2.5 | 4.2 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 01... | 16 | 1 | 4.0 | 1.5 | 2.1 | 1.2 | 19 | 16 | 1.9 | 3.0 |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | 20 | 0 | 5.8 | 1.3 | 2.9 | .6 | 24 | 20 | 6.1 | 1.9 |
| JAN , 1976 | | | | | | | | | | |
| 12... | 20 | 0 | 5.4 | 1.7 | 3.2 | .8 | 27 | 22 | 2.2 | 2.1 |
| 26... | 21 | 0 | 6.3 | 1.3 | 2.8 | 1.1 | 26 | 21 | 4.2 | 3.6 |
| FEB | | | | | | | | | | |
| 02... | 21 | 0 | 5.4 | 1.9 | 3.1 | 1.0 | 26 | 21 | 2.1 | 2.4 |
| 17... | 18 | 0 | 5.3 | 1.1 | 2.9 | .7 | 27 | 22 | 1.7 | 2.1 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | |
| 01... | 24 | 0 | 7.0 | 1.6 | 3.4 | 1.9 | 29 | 24 | 2.9 | 8.0 |
| 16... | 29 | 3 | 8.9 | 1.6 | 3.8 | .7 | 32 | 26 | 2.6 | 3.0 |

| DATE | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL ORGANIC NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO, PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | | |
| 19... | -- | .12 | .01 | .13 | .04 | .06 | .10 | .03 | .01 |
| JAN , 1974 | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | |
| 21... | -- | .12 | .00 | .12 | .02 | .12 | .14 | .02 | .00 |
| JUN | | | | | | | | | |
| 19... | -- | -- | -- | .03 | -- | -- | -- | .12 | -- |
| SEP | | | | | | | | | |
| 18... | -- | -- | -- | .04 | -- | -- | -- | .24 | -- |
| DEC | | | | | | | | | |
| 11... | -- | -- | -- | .11 | -- | -- | -- | .04 | -- |
| JAN , 1975 | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | |
| 06... | -- | -- | -- | .07 | -- | -- | -- | .01 | -- |
| MAY | | | | | | | | | |
| 08... | -- | -- | -- | .02 | -- | -- | -- | .02 | -- |
| AUG | | | | | | | | | |
| 08... | -- | -- | -- | .56 | -- | -- | -- | .26 | -- |
| OCT | | | | | | | | | |
| 14... | 3.6 | -- | -- | .86 | .12 | -- | -- | .03 | .03 |
| 20... | 1.9 | -- | -- | .10 | .06 | -- | -- | .04 | .01 |
| NOV | | | | | | | | | |
| 03... | 1.4 | -- | -- | .11 | .06 | -- | -- | .04 | .00 |
| 17... | 2.2 | -- | -- | .13 | .02 | -- | -- | .03 | .00 |
| 20... | -- | -- | -- | .09 | -- | -- | -- | .01 | -- |
| DEC | | | | | | | | | |
| 01... | 1.4 | -- | -- | .14 | .07 | -- | -- | .98 | .00 |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | 1.7 | -- | -- | .10 | .04 | -- | -- | .02 | .00 |
| JAN , 1976 | | | | | | | | | |
| 12... | 2.8 | -- | -- | .15 | .08 | -- | -- | .05 | .04 |
| 26... | 1.5 | -- | -- | .10 | .04 | -- | -- | .03 | .01 |
| FEB | | | | | | | | | |
| 02... | 1.4 | -- | -- | .07 | .07 | -- | -- | .02 | .01 |
| 17... | 1.9 | -- | -- | .15 | .07 | -- | -- | .03 | .01 |
| 19... | -- | -- | -- | .14 | -- | -- | -- | .01 | -- |
| MAR | | | | | | | | | |
| 01... | 2.0 | -- | -- | .12 | .02 | -- | -- | .01 | .00 |
| 16... | 2.1 | -- | -- | .04 | .02 | -- | -- | .01 | .00 |

## 12083400 NISQUALLY RIVER AT ELBE, WA--Continued

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| APR , 1976 | | | | | | | | | |
| 05... | 1130 | 985 | 61 | 6.9 | 6.8 | 8 | 2 | 12.4 | B18 |
| 19... | 1135 | 915 | 61 | 7.6 | 8.1 | 13 | 2 | 12.6 | B18 |
| MAY | | | | | | | | | |
| 03... | 1140 | 2700 | 50 | 7.2 | 7.6 | 17 | 15 | 12.3 | B36 |
| 17... | 1150 | 1810 | 47 | 7.7 | 7.8 | 8 | 5 | 10.9 | 40 |
| 19... | 0920 | 1420 | 50 | 7.4 | 7.0 | -- | 1 | 11.8 | 25 |
| JUN | | | | | | | | | |
| 01... | 1145 | 994 | 56 | 7.6 | 8.2 | 9 | 4 | 12.4 | B28 |
| 14... | 1145 | 938 | 60 | 7.6 | 11.0 | 17 | 4 | 12.3 | 46 |
| JUL | | | | | | | | | |
| 06... | 1210 | 1140 | 47 | 7.5 | 12.8 | 25 | 20 | 11.5 | B100 |
| 19... | 1215 | 991 | 44 | 7.4 | 12.1 | 50 | 56 | 12.0 | 50 |
| AUG | | | | | | | | | |
| 02... | 1145 | 715 | 46 | 6.9 | 12.4 | 55 | 40 | 10.6 | B100 |
| 16... | 1100 | 735 | 76 | 7.2 | 9.4 | 38 | 26 | 10.9 | B400 |
| SEP | | | | | | | | | |
| 07... | 1000 | 509 | 62 | 7.5 | 9.2 | 42 | 31 | 11.2 | <200 |
| 22... | 0955 | 692 | 41 | 6.9 | 8.5 | -- | 250 | -- | B130 |
| 27... | 1055 | 555 | 49 | 7.5 | 10.0 | -- | 100 | 10.5 | B350 |

B Results based upon colony counts outside the ideal range.

| DATE | FECAL COLIFORM (COL. PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| APR , 1976 | | | | | | | | |
| 05... | <2 | 21 | 0 | 6.3 | 1.2 | 3.4 | .9 | 30 |
| 19... | <2 | 24 | 0 | 6.9 | 1.6 | 3.3 | .5 | 29 |
| MAY | | | | | | | | |
| 03... | B4 | 16 | 0 | 4.6 | 1.2 | 2.6 | .7 | 23 |
| 17... | <2 | 16 | 0 | 4.8 | .9 | 2.2 | .5 | 26 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | |
| 01... | <2 | 20 | 0 | 5.4 | 1.5 | 3.0 | .6 | 26 |
| 14... | B2 | 18 | 0 | 5.4 | 1.2 | 3.1 | .9 | 25 |
| JUL | | | | | | | | |
| 06... | B6 | 15 | 0 | 4.4 | 1.0 | 2.4 | .8 | 21 |
| 19... | B6 | 15 | 0 | 4.5 | .8 | 2.4 | .5 | 18 |
| AUG | | | | | | | | |
| 02... | <10 | 16 | 3 | 4.5 | 1.1 | 2.8 | .6 | 16 |
| 16... | B40 | 20 | 6 | 5.4 | 1.5 | 7.1 | 1.0 | 17 |
| SEP | | | | | | | | |
| 07... | <10 | 19 | 0 | 5.3 | 1.4 | 4.4 | .8 | 26 |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | B2 | 15 | 0 | 3.9 | 1.2 | 3.6 | .7 | 22 |

B Results based upon colony counts outside the ideal range.

| DATE | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| APR , 1976 | | | | | | | | |
| 05... | 25 | 6.0 | 2.7 | 2.4 | .03 | .01 | .01 | .00 |
| 19... | 24 | 1.2 | 2.6 | 1.8 | .01 | .05 | .01 | .00 |
| MAY | | | | | | | | |
| 03... | 19 | 2.3 | 2.5 | 1.2 | .04 | .16 | .03 | .00 |
| 17... | 21 | .8 | 1.9 | 1.5 | .03 | .06 | .01 | .01 |
| 19... | -- | -- | -- | -- | .02 | -- | .01 | -- |
| JUN | | | | | | | | |
| 01... | 21 | 1.0 | 2.9 | 2.0 | .03 | .07 | .01 | .00 |
| 14... | 21 | 1.0 | 2.4 | 2.0 | .02 | .06 | .01 | .00 |
| JUL | | | | | | | | |
| 06... | 17 | 1.1 | 2.9 | 2.0 | .01 | .13 | .05 | .01 |
| 19... | 15 | 1.1 | 4.3 | 1.5 | .03 | .18 | .13 | .01 |
| AUG | | | | | | | | |
| 02... | 13 | 3.2 | 3.7 | 1.5 | .01 | .22 | .12 | .00 |
| 16... | 14 | 1.7 | 7.4 | 8.0 | .03 | .13 | .08 | .00 |
| SEP | | | | | | | | |
| 07... | 21 | 1.3 | 5.6 | 2.2 | .02 | .22 | .08 | .00 |
| 22... | -- | -- | -- | -- | .01 | -- | .77 | -- |
| 27... | 18 | 1.1 | 4.1 | 1.6 | .02 | .13 | .47 | .01 |

## 12085000 ALDER RESERVOIR AT ALDER, WA

LOCATION.--Lat 46°48'09", long 122°18'37", in SE¼NW¼ sec.9, T.15 N., R.4 E., Thurston County, Hydrologic Unit 17110015, near left end of Alder Dam on Nisqually River, 1.0 mi (1.6 km) west of Alder, 1.7 mi (2.7 km) upstream from La Grand Dam, 4.6 mi (7.4 km) upstream from Mashel River, and at mile 44.2 (71.1 km).

DRAINAGE AREA.--286 mi² (741 km²).

### WATER-CONTENTS RECORDS

PERIOD OF RECORD.--November 1944 to current year.

GAGE.--Water-stage recorder. Datum of gage is 7.61 ft (2.32 m) below mean sea level (levels by city of Tacoma). Prior to July 8, 1946, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete-arch dam; storage began Nov. 7, 1944; dam completed in 1945. Capacity, 99,170 acre-ft (122 hm³) between gage heights 1,114 ft (339.5 m), lower limit of operating range, and 1,177 ft (358.7 m), gage height of spillway. Water can be controlled by spillway gates to gage height 1,207 ft (367.9 m), usable capacity 179,600 acre-ft (221 hm³). Dead storage below gage height 1,114 ft (339.5 m), 52,110 acre-ft (64.3 hm³). Figures given herein represent total contents. Water is used by city of Tacoma for power production.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 233,848 acre-ft (288 hm³) Dec. 4, 1975, gage height 1,207.68 ft (368.101 m); minimum since reservoir first filled, 86,710 acre-ft (107 hm³), Mar. 26, 1969, gage height, 1,142.77 ft (348.316 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 233,848 acre-ft (288 hm³) Dec. 4, gage height, 1,207.68 ft (368.101 m); minimum, 95,555 acre-ft (118 hm³) Apr. 4, gage height, 1,148.58 ft (350.087 m).

Capacity table (gage height, in feet, and total contents, in acre-feet)
(Based on project surveys and maps by city of Tacoma in 1944)

| | | | | | |
|---|---|---|---|---|---|
| 1,144 | 88,510 | 1,170 | 135,800 | 1,200 | 210,840 |
| 1,150 | 97,910 | 1,180 | 158,260 | 1,207.7 | 233,910 |
| 1,160 | 115,700 | 1,190 | 183,300 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 213740 | 219430 | 227950 | 209941 | 206135 | 159387 | 97944 | 139370 | 193438 | 216408 | 227980 | 228070 |
| 2 | 212957 | 220300 | 229043 | 209477 | 204768 | 156738 | 96507 | 146449 | 193783 | 216880 | 227500 | 227680 |
| 3 | 212435 | 221950 | 232019 | 208520 | 202941 | 153986 | 95897 | 152180 | 193783 | 217330 | 227380 | 227020 |
| 4 | 211855 | 222700 | 228370 | 209274 | 200969 | 151026 | 95571 | 156598 | 193703 | 217900 | 227020 | 226900 |
| 5 | 210753 | 222850 | 226450 | 210666 | 198475 | 148045 | 95620 | 160233 | 193465 | 218470 | 227230 | 226810 |
| 6 | 209622 | 223750 | 218560 | 210811 | 195954 | 144898 | 96240 | 162889 | 193385 | 219520 | 230593 | 226450 |
| 7 | 208694 | 224830 | 212754 | 210579 | 193465 | 141841 | 96256 | 165337 | 193253 | 220840 | 228888 | 226000 |
| 8 | 207940 | 224500 | 210057 | 211159 | 191010 | 138582 | 97492 | 168315 | 193998 | 223750 | 229136 | 225250 |
| 9 | 207299 | 223120 | 206863 | 211246 | 188322 | 135695 | 99224 | 173203 | 194641 | 225580 | 229539 | 224620 |
| 10 | 206892 | 222280 | 207707 | 211478 | 185820 | 132772 | 102145 | 177598 | 195660 | 226330 | 229570 | 224050 |
| 11 | 206281 | 220810 | 208114 | 213189 | 183167 | 129701 | 106843 | 180540 | 196561 | 227020 | 229787 | 223690 |
| 12 | 205844 | 219610 | 209477 | 213566 | 181331 | 126479 | 110200 | 182020 | 197431 | 227620 | 230097 | 223210 |
| 13 | 204768 | 217870 | 208143 | 213073 | 179670 | 123119 | 112599 | 183397 | 198185 | 228160 | 230562 | 222550 |
| 14 | 203956 | 221260 | 206078 | 218560 | 177726 | 120067 | 114226 | 184519 | 198620 | 228702 | 230655 | 222190 |
| 15 | 203666 | 226330 | 204769 | 224740 | 175610 | 117054 | 115767 | 184876 | 199548 | 229384 | 230872 | 221890 |
| 16 | 203028 | 225820 | 203464 | 220030 | 176068 | 114397 | 116937 | 185360 | 202245 | 230097 | 230438 | 221350 |
| 17 | 202941 | 223570 | 201695 | 214030 | 176885 | 112543 | 117444 | 186103 | 204942 | 230593 | 229787 | 220810 |
| 18 | 203376 | 223000 | 199955 | 209448 | 177522 | 111656 | 117955 | 186542 | 207270 | 230810 | 229322 | 220360 |
| 19 | 204449 | 221920 | 197867 | 207707 | 176757 | 110128 | 118270 | 187290 | 209274 | 230593 | 228733 | 220060 |
| 20 | 205320 | 220390 | 196330 | 206689 | 176374 | 108410 | 119432 | 187187 | 211072 | 229818 | 228340 | 219910 |
| 21 | 205437 | 218500 | 194668 | 206223 | 174330 | 106321 | 120525 | 187290 | 212319 | 227950 | 227860 | 219790 |
| 22 | 203550 | 216940 | 192937 | 206048 | 172131 | 105364 | 121361 | 187625 | 212957 | 227740 | 227890 | 219760 |
| 23 | 201549 | 216650 | 192013 | 205583 | 170423 | 104285 | 122079 | 187987 | 213276 | 227980 | 227500 | 219340 |
| 24 | 199461 | 217360 | 193307 | 207416 | 169153 | 106634 | 123459 | 188582 | 213624 | 228310 | 227590 | 218920 |
| 25 | 198794 | 218140 | 194534 | 203406 | 167809 | 107139 | 124839 | 189287 | 213421 | 228100 | 227860 | 218470 |
| 26 | 198765 | 220210 | 202942 | 201869 | 166234 | 106600 | 125799 | 189600 | 213653 | 228400 | 227740 | 218140 |
| 27 | 198127 | 221350 | 203551 | 202826 | 165435 | 105434 | 127019 | 190644 | 213856 | 228430 | 227500 | 217870 |
| 28 | 198011 | 221290 | 202623 | 203638 | 163940 | 104076 | 128690 | 191326 | 213827 | 228430 | 227350 | 217720 |
| 29 | 205757 | 220330 | 205670 | 203898 | 161810 | 102023 | 130843 | 191960 | 214900 | 228100 | 227650 | 217630 |
| 30 | 215277 | 221680 | 208375 | 204942 | --- | 100231 | 134115 | 192593 | 215712 | 228310 | 227710 | 217510 |
| 31 | 218650 | --- | 209796 | 205582 | --- | 99363 | --- | 193069 | --- | 228040 | 227890 | --- |
| MAX | 218650 | 226330 | 232019 | 224740 | 206135 | 159387 | 134115 | 193069 | 215712 | 230810 | 230872 | 228070 |
| MIN | 198011 | 216650 | 192013 | 201869 | 161810 | 99363 | 95571 | 139370 | 193253 | 216408 | 227020 | 217510 |
| † | 1,202.67 | 1,203.68 | 1,199.64 | 1,198.19 | 1,181.50 | 1,150.84 | 1,169.19 | 1,193.78 | 1,201.68 | 1,205.80 | 1.205.75 | 1,202.29 |
| ‡ | +4,127 | +3,030 | -11,884 | -4,214 | -43,772 | -62,447 | +34,752 | +58,954 | +22,643 | +12,328 | -150 | -10,380 |

CAL YR 1975: ................‡ +9,145
WTR YR 1976: ................‡ +2,987

† Gage height, in feet, at end of month.
‡ Change in contents, in acre-feet.

12085000 ALDER RESERVOIR AT ALDER, WA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | DIS-SOLVED OXYGEN (MG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 19... | 0950 | 1.0 | 47 | 7.2 | 6.5 | 15 | 11.0 | 71 |
| 19... | 0955 | 20 | 47 | 7.2 | 6.5 | 15 | 11.0 | 59 |
| 19... | 1000 | 50 | 47 | 7.2 | 6.5 | 15 | 11.0 | 61 |
| 19... | 1005 | 100 | 47 | 7.2 | 6.4 | 15 | 11.1 | 68 |
| 19... | 1010 | 250 | 49 | 7.2 | 5.5 | 15 | 11.4 | 130 |
| JAN , 1974 | | | | | | | | |
| 16... | 1015 | 1.0 | -- | -- | 3.1 | -- | 13.5 | -- |
| FEB | | | | | | | | |
| 21... | 1045 | 1.0 | 39 | 7.0 | 4.7 | 6 | 12.1 | 75 |
| 21... | 1050 | 20 | 38 | 6.8 | 4.5 | 6 | 12.1 | 57 |
| 21... | 1055 | 50 | 39 | 6.8 | 4.5 | 6 | 12.2 | 65 |
| 21... | 1100 | 100 | 39 | 6.8 | 4.3 | 5 | 12.2 | 91 |
| 21... | 1105 | 200 | 40 | 6.8 | 4.2 | 180 | 12.1 | -- |
| JUN | | | | | | | | |
| 19... | 1045 | 1.0 | 50 | 7.6 | 17.9 | 1 | 9.6 | 7 |
| 19... | 1050 | 20 | 44 | 7.6 | 13.4 | 5 | 10.4 | 20 |
| 19... | 1055 | 50 | 47 | 7.5 | 10.0 | 1 | 10.0 | <1 |
| 19... | 1100 | 100 | 48 | 7.4 | 8.9 | 1 | 9.9 | 17 |
| 19... | 1105 | 254 | 43 | 7.6 | 8.2 | 1 | 10.2 | 200 |
| SEP | | | | | | | | |
| 18... | 1035 | 1.0 | 39 | 7.2 | 17.7 | 8 | 8.8 | 118 |
| 18... | 1040 | 20 | 38 | 7.3 | 16.3 | 9 | 8.3 | 100 |
| 18... | 1045 | 50 | 38 | 7.4 | 13.7 | 17 | 8.2 | <1 |
| 18... | 1050 | 100 | 38 | 7.4 | 13.2 | 17 | 8.3 | 45 |
| DEC | | | | | | | | |
| 11... | 0935 | 1.0 | 54 | 7.2 | 8.1 | 10 | 10.3 | 1 |
| 11... | 0940 | 20 | 52 | 7.2 | 8.1 | 10 | 10.3 | 17 |
| 11... | 0945 | 50 | 53 | 7.2 | 8.0 | 10 | 10.4 | 6 |
| 11... | 0950 | 100 | 51 | 7.2 | 7.5 | 10 | 10.2 | 13 |
| JAN , 1975 | | | | | | | | |
| 20... | 1330 | 1.0 | -- | -- | 4.7 | -- | 13.2 | -- |
| MAR | | | | | | | | |
| 06... | 1000 | 1.0 | 48 | 7.2 | 3.7 | 4 | 12.2 | 4 |
| 06... | 1005 | 20 | 47 | 6.8 | 3.9 | 4 | 12.2 | 3 |
| 06... | 1010 | 50 | 48 | 7.0 | 3.9 | 4 | 12.1 | 3 |
| 06... | 1015 | 100 | 48 | 7.1 | 3.8 | 5 | 12.2 | 3 |
| MAY | | | | | | | | |
| 08... | 0945 | 1.0 | 41 | 7.8 | 10.9 | 1 | 11.6 | 2 |
| 08... | 0950 | 20 | 46 | 7.4 | 9.8 | 1 | 10.7 | 15 |
| 08... | 0955 | 50 | 46 | 7.4 | 7.7 | 2 | 10.2 | 2 |

## 12085000 ALDER RESERVOIR AT ALDER, WA--Continued

### WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | |
| 19... | .09 | .01 | .10 | .07 | .26 | .04 | .03 |
| 19... | .09 | .01 | .10 | .07 | .16 | .04 | .02 |
| 19... | .09 | .01 | .10 | .07 | .07 | .03 | .02 |
| 19... | .10 | .01 | .11 | .09 | .11 | .03 | .02 |
| 19... | .13 | .01 | .14 | .06 | .09 | .04 | .01 |
| JAN , 1974 | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | |
| 21... | .12 | .01 | .13 | .10 | .16 | .03 | .02 |
| 21... | .12 | .01 | .13 | .14 | .84 | .03 | .02 |
| 21... | .12 | .01 | .13 | .11 | .12 | .03 | .02 |
| 21... | .13 | .01 | .14 | .11 | .44 | .03 | .02 |
| 21... | .17 | .01 | .18 | .24 | .45 | .19 | .04 |
| JUN | | | | | | | |
| 19... | .00 | .00 | .00 | .01 | .11 | .02 | .00 |
| 19... | .00 | .01 | .01 | .04 | .12 | .02 | .01 |
| 19... | .00 | .00 | .00 | .02 | .12 | .01 | .00 |
| 19... | .00 | .00 | .00 | .02 | .07 | .01 | .00 |
| 19... | .02 | .01 | .03 | .04 | .09 | .02 | .01 |
| SEP | | | | | | | |
| 18... | -- | -- | .01 | -- | -- | .02 | -- |
| 18... | -- | -- | .01 | -- | -- | .02 | -- |
| 18... | -- | -- | .01 | -- | -- | .03 | -- |
| 18... | -- | -- | .02 | -- | -- | .04 | -- |
| DEC | | | | | | | |
| 11... | -- | -- | .10 | -- | -- | .04 | -- |
| 11... | -- | -- | .09 | -- | -- | .04 | -- |
| 11... | -- | -- | .09 | -- | -- | .04 | -- |
| 11... | -- | -- | .16 | -- | -- | .03 | -- |
| JAN , 1975 | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | |
| 06... | -- | -- | .13 | -- | -- | .04 | -- |
| 06... | -- | -- | .13 | -- | -- | .02 | -- |
| 06... | -- | -- | .13 | -- | -- | .02 | -- |
| 06... | -- | -- | .13 | -- | -- | .02 | -- |
| MAY | | | | | | | |
| 08... | -- | -- | 1.6 | -- | -- | .08 | -- |
| 08... | -- | -- | .49 | -- | -- | .02 | -- |
| 08... | -- | -- | .15 | -- | -- | .02 | -- |

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY , 1975 | | | | | | | | | | |
| 08... | 1000 | 100 | 42 | 7.6 | 6.2 | 2 | 10.6 | <1 | .05 | .02 |
| AUG | | | | | | | | | | |
| 08... | 0930 | 1.0 | 50 | -- | 17.4 | 25 | 8.8 | <1 | .02 | .04 |
| 08... | 0935 | 20 | 41 | -- | 17.2 | -- | 8.8 | <1 | -- | -- |
| 08... | 0940 | 50 | 42 | -- | 13.4 | 15 | 9.1 | 3 | .02 | .04 |
| 08... | 0945 | 100 | 42 | -- | 11.7 | -- | 8.6 | 3 | -- | -- |
| NOV | | | | | | | | | | |
| 20... | 1155 | 3.0 | 41 | 6.9 | 8.3 | 20 | 11.0 | 64 | .07 | .04 |
| 20... | 1200 | 20 | 39 | 7.1 | 8.3 | 20 | 10.7 | 82 | .05 | .04 |
| 20... | 1205 | 50 | 39 | 7.2 | 8.3 | 20 | 10.9 | 73 | .07 | .04 |
| 20... | 1210 | 100 | 41 | 7.3 | 8.1 | 15 | 10.8 | 45 | .08 | .04 |
| DEC | | | | | | | | | | |
| 03... | 0950 | 1.0 | -- | -- | 7.4 | 15 | 10.9 | -- | -- | -- |
| FEB , 1976 | | | | | | | | | | |
| 19... | 0955 | 1.0 | 36 | 7.2 | 3.8 | 7 | 12.1 | 6 | .11 | .02 |
| 19... | 1005 | 20 | 36 | 7.2 | 3.8 | 8 | 12.0 | 13 | .11 | .02 |
| 19... | 1015 | 50 | 36 | 7.2 | 3.8 | 8 | 12.0 | 5 | .11 | .02 |
| 19... | 1025 | 100 | 36 | 7.2 | 3.9 | 7 | 12.0 | 6 | .42 | .03 |
| MAY | | | | | | | | | | |
| 19... | 0940 | 1.0 | 41 | 6.8 | 12.9 | 2 | 11.0 | 5 | .01 | .01 |
| 19... | 0950 | 20 | 40 | 7.1 | 11.5 | 2 | 11.0 | 2 | .01 | .01 |
| 19... | 1000 | 50 | 51 | 7.2 | 8.5 | 2 | 10.6 | 2 | .03 | .01 |
| 19... | 1010 | 100 | 43 | 7.2 | 7.6 | 2 | 10.9 | 3 | .04 | .01 |
| SEP | | | | | | | | | | |
| 22... | 1025 | 1.0 | 41 | 7.4 | 16.6 | 3 | 9.2 | 6300 | .00 | .03 |
| 22... | 1035 | 20 | 40 | 7.3 | 15.6 | 6 | 8.4 | 4900 | .01 | .03 |
| 22... | 1045 | 50 | 39 | 7.2 | 13.7 | 15 | 8.5 | B61 | .01 | .04 |
| 22... | 1055 | 100 | 38 | 7.2 | 13.1 | 15 | 8.6 | B53 | .01 | .05 |

B Results based upon colony counts outside the ideal range.

## 12085500 LA GRANDE RESERVOIR AT LA GRANDE, WA

LOCATION.--Lat 46°49'23", long 122°18'13", in SW¼SE¼ sec.33, T.16 N., R.4 E., Thurston County, Hydrologic Unit 1710015, at left end of gate control structure, 1.1 mi (1.8 km) southeast of La Grande, 1.7 mi (2.7 km) downstream from Alder Dam, and at mile 42.5 (68.4 km).

DRAINAGE AREA.--289 $mi^2$ (749 $km^2$).

PERIOD OF RECORD.--January 1945 to current year. January 1945 to September 1951 included in combined adjustment to monthly flow of Nisqually River at La Grande. Monthend contents January 1945 to September 1950, published in WSP 1316.

GAGE.--Water-stage recorder. Datum of gage is 7.61 ft (2.320 m) below mean sea level (levels by city of Tacoma). Prior to June 12, 1947, monthend gage heights furnished by city of Tacoma from temporary gages in pool above dam.

REMARKS.--Reservoir is formed by concrete gravity dam completed in 1944; storage began in February 1945. Usable storage, 1,053 acre-ft (1.30 $hm^3$) between gage heights 910 ft (277.4 m), minimum practical head, and 935 ft (285.0 m), normal reservoir level. Dead storage below elevation 910 ft (277[illegible] m), 1,629 acre-ft (2.01 $hm^3$). Figures given herein represent total contents. Water used by city of Tacoma for power production.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,760 acre-ft (3.40 $hm^3$), May 14, 1950, gage height, 936.4 ft (285.41 m); minimum observed since reservoir first filled, 1,370 acre-ft (1.69 $hm^3$) Aug. 24, 1956, gage height, 900.0 ft (274.32 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,699 acre-ft (3.33 $hm^3$) Feb. 20, gage height, 935.30 ft (285.079 m); minimum recorded, 1,778 acre-ft (2.19 $hm^3$) Aug. 16, gage height, 914.83 ft (278.840 m).

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Gage height (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept.30 | 929.79 | 2,406 | - |
| Oct. 31 | 931.38 | 2,488 | +82 |
| Nov. 30 | 932.49 | 2,546 | +58 |
| Dec. 31 | 930.21 | 2,428 | -118 |
| CAL YR 1975 | - | - | +21 |
| Jan. 31 | 931.86 | 2,513 | +85 |
| Feb. 29 | 930.49 | 2,442 | -71 |
| Mar. 31 | 928.89 | 2,362 | -80 |
| Apr. 30 | 931.13 | 2,474 | +112 |
| May 31 | 930.80 | 2,458 | -16 |
| June 30 | 928.98 | 2,366 | -92 |
| July 31 | 928.47 | 2,341 | -25 |
| Aug. 31 | 929.68 | 2,401 | +60 |
| Sept.30 | 928.75 | 2,354 | -47 |
| WTR YR 1976 | - | - | -52 |

## 12086500 NISQUALLY RIVER AT LA GRANDE, WA

LOCATION.--Lat 46°50'25", long 122°19'38", in NW¼SE¼ sec.29, T.16 N., R.4 E., Pierce County, Hydrologic Unit 17110015, on right bank 0.4 mi (0.6 km) downstream from city of Tacoma powerplant, 0.6 mi (1.0 km) northwest of La Grande, 0.8 mi (1.3 km) upstream from Mashel River, and at mile 40.4 (65.0 km).

DRAINAGE AREA.--292 mi² (756 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1906 to October 1911, November to December 1911 (gage heights only), October 1919 to September 1931, October 1943 to current year. Monthly discharge only for some periods, published in WSP 1316. Published as "below Little Nisqually River, near La Grande" 1906-10, and as "near La Grande" 1912, 1919-31.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1316: 1927-28(M), 1949-50. WRD Wash. 1974: 1956(M). 1959-61(M), 1965.

GAGE.--Water-stage recorder. Altitude of gage is 490 ft (149 m), from river-profile map. See WSP 1932 for history of changes prior to Feb. 8, 1945.

REMARKS.--Water discharge records good. Flow regulated by city of Tacoma powerplant at La Grande since December 1943, by Alder Reservoir (see sta 12085000) since November 1944, and by La Grande Reservoir (see preceding page) since February 1945. All diversions returned to river above gage.

AVERAGE DISCHARGE.--50 years,(water years 1907-11, 1920-31, 1944-76), 1,443 ft³/s (40.87 m³/s), 67.11 in/yr (1,705 mm/yr), 1,045,000 acre-ft/yr (1,290 hm³/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,100 ft³/s (767 m³/s) Dec. 4, 1975, gage height, 11.90 ft (3.627 m); practically no flow on many occasions at site near La Grande as result of regulation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,100 ft³/s (767 m³/s) Dec. 4, gage height, 11.90 ft (3.627 m); minimum, 624 ft³/s (17.7 m³/s) Oct. 13; minimum gage height, 3.12 ft (0.951 m) Sept. 22; minimum daily discharge, 790 ft³/s (22.4 m³/s) Aug. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 924 | 2140 | 5200 | 2440 | 1410 | 2370 | 1990 | 950 | 1120 | 850 | 1080 | 940 |
| 2 | 960 | 2140 | 12900 | 2460 | 2020 | 2370 | 1810 | 1200 | 1110 | 850 | 1270 | 1120 |
| 3 | 1030 | 2140 | 15400 | 2460 | 2340 | 2360 | 1430 | 1100 | 1110 | 840 | 11[illegible] | 1140 |
| 4 | 1070 | 2140 | 22500 | 2440 | 2360 | 2370 | 1270 | 1000 | 1110 | 840 | 1050 | 930 |
| 5 | 1150 | 2170 | 9400 | 2460 | 2360 | 2370 | 1480 | 1100 | 1110 | 840 | 830 | 930 |
| 6 | 1320 | 2160 | 9100 | 2470 | 2340 | 2370 | 1570 | 1200 | 1110 | 840 | 830 | 950 |
| 7 | 911 | 2300 | 9400 | 2460 | 2340 | 2360 | 1760 | 1300 | 1000 | 840 | 1030 | 940 |
| 8 | 852 | 2670 | 7810 | 2470 | 2340 | 2370 | 1820 | 1600 | 850 | 858 | 1210 | 940 |
| 9 | 852 | 2670 | 6170 | 2460 | 2330 | 2370 | 1700 | 1300 | 870 | 859 | 900 | 930 |
| 10 | 864 | 2200 | 4440 | 2470 | 2340 | 2340 | 1150 | 1400 | 880 | 857 | 970 | 930 |
| 11 | 852 | 2160 | 2900 | 2470 | 2330 | 2370 | 990 | 1900 | 870 | 872 | 860 | 930 |
| 12 | 840 | 1940 | 1700 | 2470 | 2330 | 2370 | 1000 | 1800 | 840 | 950 | 840 | 930 |
| 13 | 816 | 2050 | 3050 | 2470 | 2340 | 2370 | 1040 | 1900 | 900 | 853 | 790 | 930 |
| 14 | 852 | 2160 | 3080 | 3370 | 2340 | 2240 | 1290 | 2000 | 840 | 868 | 870 | 930 |
| 15 | 840 | 2760 | 2580 | 8680 | 2360 | 2090 | 1220 | 2000 | 920 | 894 | 1160 | 930 |
| 16 | 840 | 4120 | 2440 | 12400 | 2360 | 2030 | 1050 | 2100 | 850 | 998 | 1170 | 930 |
| 17 | 840 | 3940 | 2460 | 9760 | 2360 | 2060 | 1230 | 1800 | 870 | 1170 | 1040 | 930 |
| 18 | 840 | 2380 | 2380 | 7170 | 2370 | 2200 | 1230 | 1500 | 840 | 1240 | 1060 | 930 |
| 19 | 840 | 2160 | 2380 | 4900 | 2360 | 2360 | 1140 | 1300 | 980 | 1400 | 1140 | 930 |
| 20 | 840 | 2160 | 2200 | 3460 | 1710 | 2380 | 1140 | 1500 | 1010 | 1680 | 1110 | 930 |
| 21 | 1160 | 2160 | 2200 | 2700 | 2360 | 2380 | 1160 | 1400 | 940 | 2180 | 1040 | 930 |
| 22 | 2030 | 2140 | 2330 | 2380 | 2340 | 2240 | 1090 | 1300 | 1080 | 1140 | 940 | 870 |
| 23 | 1740 | 2140 | 2460 | 2370 | 2340 | 2230 | 1060 | 1250 | 1150 | 973 | 1000 | 930 |
| 24 | 1730 | 2140 | 2470 | 2370 | 2360 | 2290 | 1140 | 1250 | 960 | 1090 | 910 | 920 |
| 25 | 1600 | 2160 | 2470 | 2310 | 2370 | 2310 | 1050 | 1250 | 1170 | 1390 | 940 | 880 |
| 26 | 1810 | 2160 | 3780 | 2360 | 2380 | 2270 | 1000 | 1260 | 930 | 1020 | 1060 | 880 |
| 27 | 1970 | 2160 | 5800 | 2100 | 2400 | 2200 | 950 | 1260 | 860 | 1110 | 950 | 880 |
| 28 | 2030 | 2160 | 4820 | 1980 | 2380 | 2200 | 900 | 1270 | 1100 | 1120 | 800 | 890 |
| 29 | 2050 | 2160 | 2460 | 2130 | 2380 | 2200 | 850 | 1260 | 860 | 1180 | 820 | 880 |
| 30 | 2140 | 2140 | 2440 | 1590 | --- | 2100 | 900 | 1140 | 850 | 1090 | 820 | 880 |
| 31 | 2160 | --- | 2440 | 1430 | --- | 1920 | --- | 1120 | --- | 1110 | 900 | --- |
| TOTAL | 38753 | 70080 | 161160 | 105460 | 66350 | 70460 | 37410 | 43710 | 29090 | 32802 | 30530 | 27990 |
| MEAN | 1250 | 2336 | 5199 | 3402 | 2288 | 2273 | 1247 | 1410 | 970 | 1058 | 985 | 933 |
| MAX | 2160 | 4120 | 22500 | 12400 | 2400 | 2380 | 1990 | 2100 | 1170 | 2180 | 1270 | 1140 |
| MIN | 816 | 1940 | 1700 | 1430 | 1410 | 1920 | 850 | 950 | 840 | 840 | 790 | 870 |
| AC-FT | 76870 | 139000 | 319700 | 209200 | 131600 | 139800 | 74200 | 86700 | 57700 | 65060 | 60560 | 55520 |
| † | +4,209 | +3,088 | -12,002 | -4,129 | -43,843 | -62,527 | +34,864 | +58,938 | +22,551 | +12,303 | -90 | -10,427 |
| MEAN‡ | 1,318 | 2,389 | 5,003 | 3,335 | 1,525 | 1,256 | 1,834 | 2,367 | 1,349 | 1,258 | 983 | 758 |
| CFSM‡ | 4.51 | 8.18 | 17.1 | 11.4 | 5.22 | 4.30 | 6.28 | 8.11 | 4.62 | 4.31 | 3.37 | 2.60 |
| IN.‡ | 5.21 | 9.12 | 19.76 | 13.17 | 5.64 | 4.96 | 7.01 | 9.35 | 5.15 | 4.97 | 3.88 | 2.90 |
| AC-FT‡ | 81,080 | 142,100 | 307,700 | 205,100 | 87,760 | 77,270 | 109,100 | 145,600 | 80,250 | 77,360 | 60,470 | 45,090 |

CAL YR 1975: TOTAL 681,631 MEAN 1,867 MAX 22,500 MIN 570 AC-FT 1,352,000
DO.....: MEAN‡ 1,875 CFSM‡ 6.42 IN.‡ 87.39 AC-FT‡ 1,361,000
WTR YR 1976: TOTAL 713,795 MEAN 1,950 MAX 22,500 MIN 790 AC-FT 1,416,000
DO.....: MEAN‡ 1,955 CFSM‡ 6.70 IN.‡ 91.11 AC-FT‡ 1,419,000

† Change in contents, in acre-feet, in Alder and La Grande Reservoirs.
‡ Adjusted for change in reservoir contents.

## 12086500 NISQUALLY RIVER AT LA GRANDE, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1965 to current year.

INSTRUMENTATION.--Temperature recorder since 1965.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 14.5°C Sept. 21-24, 26, 27, 1973; minimum, 2.0°C Jan. 19-21, 1972, Jan. 23, 24, 27-31, 1973, Dec. 21, 22, 30, 1974.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 13.0°C Oct. 1-14, Sept. 25-30; minimum recorded, 3.5°C Mar. 4-6, 12, 15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 19... | 1200 | 2730 | 50 | 6.8 | 5.8 | 9 | 12.3 | 300 |
| JAN , 1974 | | | | | | | | |
| 16... | 1240 | 17800 | -- | -- | 3.9 | -- | 14.0 | -- |
| FEB | | | | | | | | |
| 21... | 1145 | 2210 | 40 | 7.2 | 4.3 | 10 | 12.6 | 32 |
| JUN | | | | | | | | |
| 19... | 1040 | 2690 | 44 | 7.3 | 8.7 | 2 | 11.2 | 30 |
| SEP | | | | | | | | |
| 18... | 1300 | 460 | 39 | 7.2 | 13.0 | 16 | 11.3 | 30 |
| DEC | | | | | | | | |
| 11... | 0915 | 1200 | 56 | 6.6 | 7.3 | 9 | 11.7 | 48 |
| JAN , 1975 | | | | | | | | |
| 20... | 1130 | 5320 | -- | -- | 4.4 | -- | 13.1 | -- |
| MAR | | | | | | | | |
| 06... | 0940 | 2140 | 50 | 6.8 | 3.8 | 4 | 12.9 | 4 |
| MAY | | | | | | | | |
| 08... | 1055 | 570 | 45 | 7.6 | 6.6 | 2 | 12.9 | 25 |
| AUG | | | | | | | | |
| 08... | 1010 | 580 | 49 | 7.1 | 11.0 | 11 | 11.7 | 14 |
| NOV | | | | | | | | |
| 20... | 1155 | 2160 | 41 | 7.0 | 7.6 | 10 | 12.1 | 54 |
| DEC | | | | | | | | |
| 03... | 1125 | 15600 | -- | -- | 7.4 | 25 | 12.8 | -- |
| FEB , 1976 | | | | | | | | |
| 19... | 1020 | 2360 | 38 | 7.5 | 4.0 | 9 | 12.8 | 13 |
| MAY | | | | | | | | |
| 19... | 1020 | *1300 -- | 47 | 7.2 | 6.8 | 3 | 12.2 | 30 |
| SEP | | | | | | | | |
| 22... | 1100 | 726 | 42 | 7.0 | 12.4 | 10 | 9.8 | 870 |

* Mean daily discharge.

| DATE | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | |
| 19... | .22 | .01 | .23 | .07 | .08 | .02 | .01 |
| JAN , 1974 | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | |
| 21... | .15 | .01 | .16 | .08 | .10 | .04 | .03 |
| JUN | | | | | | | |
| 19... | -- | -- | .01 | -- | -- | .02 | -- |
| SEP | | | | | | | |
| 18... | -- | -- | .02 | -- | -- | .03 | -- |
| DEC | | | | | | | |
| 11... | -- | -- | .14 | -- | -- | .03 | -- |
| JAN , 1975 | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | |
| 06... | -- | -- | .14 | -- | -- | .02 | -- |
| MAY | | | | | | | |
| 08... | -- | -- | .08 | -- | -- | .01 | -- |
| AUG | | | | | | | |
| 08... | -- | -- | .02 | -- | -- | .03 | -- |
| NOV | | | | | | | |
| 20... | -- | -- | .09 | -- | -- | .04 | -- |
| DEC | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- |
| FEB , 1976 | | | | | | | |
| 19... | -- | -- | .12 | -- | -- | .03 | -- |
| MAY | | | | | | | |
| 19... | -- | -- | .04 | -- | -- | .01 | -- |
| SEP | | | | | | | |
| 22... | -- | -- | .01 | -- | -- | .04 | -- |

12086500 NISQUALLY RIVER AT LA GRANDE, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 13.0 | 12.5 | 13.0 | 9.0 | 8.5 | 9.0 | | | | | | |
| 2 | 13.0 | 13.0 | 13.0 | 8.5 | 8.0 | 8.5 | | | | | | |
| 3 | 13.0 | 13.0 | 13.0 | 8.5 | 8.0 | 8.0 | | | | | | |
| 4 | 13.0 | 12.5 | 13.0 | 8.0 | 8.0 | 8.0 | | | | | | |
| 5 | 13.0 | 13.0 | 13.0 | 8.0 | 8.0 | 8.0 | | | | | | |
| 6 | 13.0 | 13.0 | 13.0 | 8.5 | 8.0 | 8.0 | | | | | | |
| 7 | 13.0 | 13.0 | 13.0 | 8.5 | 8.5 | 8.5 | | | | | | |
| 8 | 13.0 | 13.0 | 13.0 | 8.5 | 8.5 | 8.5 | | | | | | |
| 9 | 13.0 | 13.0 | 13.0 | 8.5 | 8.5 | 8.5 | | | | | | |
| 10 | 13.0 | 12.5 | 13.0 | 8.5 | 8.5 | 8.5 | | | | | | |
| 11 | 13.0 | 13.0 | 13.0 | 8.0 | 8.0 | 8.0 | | | | | | |
| 12 | 13.0 | 12.5 | 13.0 | 8.0 | 7.5 | 7.5 | | | | | | |
| 13 | 13.0 | 12.5 | 12.5 | 7.5 | 7.5 | 7.5 | | | | | | |
| 14 | 13.0 | 12.5 | 12.5 | 7.5 | 7.5 | 7.5 | | | | | | |
| 15 | 12.5 | 12.5 | 12.5 | 7.5 | 7.5 | 7.5 | | | | | | |
| 16 | 12.5 | 12.5 | 12.5 | 7.5 | 7.5 | 7.5 | | | | | | |
| 17 | 12.5 | 12.5 | 12.5 | 7.5 | 7.5 | 7.5 | | | | | | |
| 18 | 12.5 | 12.0 | 12.5 | 7.5 | 7.5 | 7.5 | | | | | | |
| 19 | 12.5 | 12.0 | 12.0 | 7.5 | 7.5 | 7.5 | | | | | | |
| 20 | 12.0 | 12.0 | 12.0 | 7.5 | 7.0 | 7.5 | | | | | | |
| 21 | 12.0 | 12.0 | 12.0 | 7.0 | 6.5 | 7.0 | | | | | | |
| 22 | 12.0 | 11.5 | 11.5 | 6.5 | 6.5 | 6.5 | | | | | | |
| 23 | 11.5 | 11.5 | 11.5 | 6.5 | 6.0 | 6.0 | | | | | | |
| 24 | 11.5 | 11.0 | 11.0 | 6.0 | 6.0 | 6.0 | | | | | | |
| 25 | 11.0 | 11.0 | 11.0 | 6.5 | 6.0 | 6.0 | | | | | | |
| 26 | 11.0 | 11.0 | 11.0 | 6.5 | 6.5 | 6.5 | | | | | | |
| 27 | 11.0 | 10.5 | 11.0 | 6.5 | 6.5 | 6.5 | | | | | | |
| 28 | 10.5 | 10.5 | 10.5 | 6.5 | 6.0 | 6.0 | | | | | | |
| 29 | 10.5 | 10.0 | 10.5 | 6.0 | 6.0 | 6.0 | | | | | | |
| 30 | 10.0 | 9.5 | 10.0 | 6.0 | 6.0 | 6.0 | | | | | | |
| 31 | 9.5 | 9.0 | 9.5 | --- | --- | --- | | | | | | |
| MONTH | 13.0 | 9.0 | 12.0 | 9.0 | 6.0 | 7.5 | | | | | | |

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | --- | --- | --- | 4.0 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 6.5 | 6.0 | 6.0 |
| 2 | --- | --- | --- | 4.0 | 4.0 | 4.0 | 5.0 | 4.5 | 4.5 | 6.5 | 6.0 | 6.0 |
| 3 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 | 4.5 | 5.0 | 6.5 | 6.0 | 6.0 |
| 4 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | 4.0 | 5.5 | 5.0 | 5.0 | 6.5 | 6.0 | 6.0 |
| 5 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | 4.0 | 5.5 | 5.0 | 5.5 | 6.0 | 6.0 | 6.0 |
| 6 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | 4.0 | 5.5 | 5.0 | 5.5 | 6.0 | 6.0 | 6.0 |
| 7 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.0 |
| 8 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.0 |
| 9 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.5 | 5.0 | 5.0 | 6.5 | 6.0 | 6.5 |
| 10 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.5 |
| 11 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.5 | 5.5 | 5.5 | 6.5 | 6.0 | 6.0 |
| 12 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | 4.0 | 5.5 | 5.0 | 5.0 | 6.5 | 6.0 | 6.5 |
| 13 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.5 |
| 14 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | 6.5 | 6.5 | 6.5 |
| 15 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | 4.0 | 5.0 | 5.0 | 5.0 | 7.0 | 6.5 | 6.5 |
| 16 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | 7.0 | 6.5 | 6.5 |
| 17 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | 7.0 | 6.5 | 7.0 |
| 18 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | 7.0 | 6.5 | 7.0 |
| 19 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 5.5 | 5.0 | 5.0 | 7.0 | 7.0 | 7.0 |
| 20 | 4.0 | 4.0 | 4.0 | 4.5 | 4.0 | 4.0 | 5.5 | 5.0 | 5.5 | 7.5 | 7.0 | 7.0 |
| 21 | 4.0 | 4.0 | 4.0 | 4.5 | 4.0 | 4.5 | 5.5 | 5.0 | 5.0 | 7.5 | 7.0 | 7.5 |
| 22 | 4.0 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 5.5 | 5.5 | 5.5 | 7.5 | 7.0 | 7.5 |
| 23 | 4.0 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 5.5 | 5.0 | 5.5 | 7.5 | 7.5 | 7.5 |
| 24 | 4.0 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 5.5 | 5.0 | 5.5 | 7.5 | 7.5 | 7.5 |
| 25 | 4.0 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 5.5 | 5.5 | 5.5 | 7.5 | 7.5 | 7.5 |
| 26 | 4.0 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 5.5 | 5.5 | 5.5 | 8.0 | 7.5 | 7.5 |
| 27 | 4.0 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 6.0 | 5.5 | 5.5 | 8.0 | 7.5 | 7.5 |
| 28 | 4.0 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 6.5 | 5.5 | 6.0 | 7.5 | 7.5 | 7.5 |
| 29 | 4.0 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 6.5 | 6.0 | 6.0 | 7.5 | 7.5 | 7.5 |
| 30 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 7.0 | 6.0 | 6.0 | 8.0 | 7.5 | 7.5 |
| 31 | --- | --- | --- | 4.5 | 4.5 | 4.5 | --- | --- | --- | 8.0 | 7.5 | 7.5 |
| MONTH | 4.0 | 4.0 | 4.0 | 4.5 | 3.5 | 4.0 | 7.0 | 4.5 | 5.0 | 8.0 | 6.0 | 7.0 |

## 12086500 NISQUALLY RIVER AT LA GRANDE, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 7.5 | 7.5 | 7.5 | 9.0 | 8.5 | 8.5 | 10.0 | 10.0 | 10.0 | 12.0 | 11.5 | 11.5 |
| 2 | 8.0 | 7.5 | 7.5 | 9.0 | 8.5 | 8.5 | 10.0 | 10.0 | 10.0 | 11.5 | 11.5 | 11.5 |
| 3 | 8.0 | 7.5 | 7.5 | 9.0 | 8.5 | 8.5 | 10.0 | 10.0 | 10.0 | 12.0 | 11.5 | 11.5 |
| 4 | 8.0 | 7.5 | 8.0 | 9.0 | 8.5 | 9.0 | 10.5 | 10.0 | 10.0 | 12.0 | 11.5 | 11.5 |
| 5 | 8.0 | 8.0 | 8.0 | 9.0 | 9.0 | 9.0 | 10.0 | 10.0 | 10.0 | 12.0 | 11.5 | 11.5 |
| 6 | 8.0 | 8.0 | 8.0 | 9.0 | 9.0 | 9.0 | 10.0 | 10.0 | 10.0 | 12.0 | 11.5 | 11.5 |
| 7 | 8.0 | 8.0 | 8.0 | 9.0 | 9.0 | 9.0 | 10.5 | 10.0 | 10.0 | 12.0 | 11.5 | 11.5 |
| 8 | 8.0 | 8.0 | 8.0 | 9.0 | 9.0 | 9.0 | 10.5 | 10.0 | 10.5 | 12.0 | 11.5 | 12.0 |
| 9 | 8.5 | 8.0 | 8.0 | 9.0 | 8.5 | 9.0 | 10.5 | 10.5 | 10.5 | 12.0 | 11.5 | 12.0 |
| 10 | 8.5 | 8.0 | 8.0 | 9.0 | 9.0 | 9.0 | 10.5 | 10.5 | 10.5 | 12.0 | 12.0 | 12.0 |
| 11 | 8.0 | 8.0 | 8.0 | 9.0 | 9.0 | 9.0 | 11.0 | 10.5 | 10.5 | 12.0 | 12.0 | 12.0 |
| 12 | 8.0 | 8.0 | 8.0 | 9.0 | 9.0 | 9.0 | 11.0 | 10.5 | 10.5 | 12.0 | 12.0 | 12.0 |
| 13 | 8.5 | 8.0 | 8.0 | 9.0 | 9.0 | 9.0 | 11.0 | 10.5 | 10.5 | 12.0 | 12.0 | 12.0 |
| 14 | 8.5 | 8.0 | 8.5 | 9.5 | 9.0 | 9.0 | 11.0 | 10.5 | 10.5 | 12.0 | 12.0 | 12.0 |
| 15 | 8.5 | 8.0 | 8.5 | 9.5 | 9.0 | 9.5 | 11.0 | 10.5 | 10.5 | 12.0 | 12.0 | 12.0 |
| 16 | 8.0 | 8.0 | 8.0 | 9.5 | 9.0 | 9.5 | 11.0 | 10.5 | 10.5 | 12.5 | 12.0 | 12.0 |
| 17 | 8.5 | 8.0 | 8.5 | 9.5 | 9.0 | 9.0 | 11.0 | 10.5 | 11.0 | 12.5 | 12.0 | 12.0 |
| 18 | 9.0 | 8.5 | 8.5 | 9.5 | 9.0 | 9.0 | 11.0 | 11.0 | 11.0 | 12.5 | 12.0 | 12.5 |
| 19 | 8.5 | 8.5 | 8.5 | 9.5 | 9.0 | 9.0 | 11.0 | 11.0 | 11.0 | 12.5 | 12.5 | 12.5 |
| 20 | 8.5 | 8.5 | 8.5 | 9.5 | 9.0 | 9.0 | 11.0 | 11.0 | 11.0 | 12.5 | 12.5 | 12.5 |
| 21 | 8.5 | 8.0 | 8.5 | 9.5 | 9.0 | 9.0 | 11.0 | 11.0 | 11.0 | 12.5 | 12.5 | 12.5 |
| 22 | 8.5 | 8.0 | 8.5 | 9.5 | 9.0 | 9.5 | 11.0 | 11.0 | 11.0 | 12.5 | 12.5 | 12.5 |
| 23 | 8.5 | 8.0 | 8.5 | 9.5 | 9.5 | 9.5 | 11.0 | 11.0 | 11.0 | 12.5 | 12.5 | 12.5 |
| 24 | 8.5 | 8.5 | 8.5 | 9.5 | 9.5 | 9.5 | 11.0 | 11.0 | 11.0 | 12.5 | 12.5 | 12.5 |
| 25 | 8.5 | 8.5 | 8.5 | 9.5 | 9.5 | 9.5 | 11.5 | 11.0 | 11.0 | 13.0 | 12.5 | 12.5 |
| 26 | 8.5 | 8.5 | 8.5 | 9.5 | 9.5 | 9.5 | 11.5 | 11.0 | 11.0 | 13.0 | 12.5 | 12.5 |
| 27 | 8.5 | 8.5 | 8.5 | 10.0 | 9.5 | 9.5 | 11.5 | 11.0 | 11.5 | 13.0 | 12.5 | 12.5 |
| 28 | 9.0 | 8.5 | 8.5 | 10.0 | 9.5 | 10.0 | 11.5 | 11.5 | 11.5 | 13.0 | 12.5 | 13.0 |
| 29 | 9.0 | 8.5 | 8.5 | 10.0 | 9.5 | 9.5 | 12.0 | 11.5 | 11.5 | 13.0 | 12.5 | 13.0 |
| 30 | 9.0 | 8.5 | 8.5 | 10.0 | 9.5 | 10.0 | 12.0 | 11.5 | 11.5 | 13.0 | 12.5 | 13.0 |
| 31 | --- | --- | --- | 10.0 | 10.0 | 10.0 | 12.0 | 11.5 | 11.5 | --- | --- | --- |
| MONTH | 9.0 | 7.5 | 8.0 | 10.0 | 8.5 | 9.0 | 12.0 | 10.0 | 10.5 | 13.0 | 11.5 | 12.0 |
| YEAR | 13.0 | 3.5 | 8.0 | | | | | | | | | |

## 12088400 NISQUALLY RIVER ABOVE POWELL CREEK, NEAR MCKENNA, WA

LOCATION.--Lat 46°51'03", long 122°26'06", in SE¼SW¼ sec.21, T.16 N., R.3 E., Thurston County, Hydrologic Unit 17110015, on left bank 400 ft (122 m) downstream from logging bridge, 1.8 (2.9 km) upstream from Tanwax Creek, 10 mi (16 km) southeast of Yelm, and at mile 32.6 (52.5 km).

DRAINAGE AREA.--431 mi² (1,116 km²). Area at site used 1941-63, 445 mi² (1,153 km²).

PERIOD OF RECORD.--August 1941 to July 1963 (published as Nisqually River near McKenna, March 1969 to current year. Chemical analyses October 1972 to September 1973.

REVISED RECORDS.--WSP 1286: 1947.

GAGE.--Water-stage recorder. Altitude of gage is 390 ft (119 m), from topographic map. Prior to July 3, 1963, at site 1 mi (1.6 km) downstream at different datum.

REMARKS.--Records good. No diversion above station. Major portion of flow regulated by Alder Reservoir (see sta 12085000) and city of Tacoma powerplant at La Grande.

AVERAGE DISCHARGE.--28 years (water years 1942-62, 1970-76), 1,866 ft³/s (52.85 m³/s), 1,352,000 acre-ft/yr (1,670 hm³/yr) unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,700 ft³/s (869 m³/s) Dec. 4, 1975, gage height, 11.97 ft (3.648 m) from rating curve extended above 20,000 ft³/s (566 m³/s); minimum, 85 ft³/s (2.41 m³/s) Oct. 19, 1945, gage height, 2.57 ft (0.783 m), site and datum then in use; minimum daily, 176 ft³/s (4.98 m³/s) Jan. 30, 1945.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,700 ft³/s (869 m³/s) Dec. 4, gage height, 11.97 ft (3.648 m); minimum, 670 ft³/s (19.0 m³/s), Oct. 13, gage height, 2.86 ft (0.872 m); minimum daily, 814 ft³/s (23.1 m³/s) Aug. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 980 | 2600 | 8120 | 3020 | 1650 | 2740 | 2510 | 1140 | 1210 | 870 | 1020 | 969 |
| 2 | 1010 | 2500 | 17000 | 2930 | 2160 | 2690 | 2270 | 1440 | 1290 | 879 | 1170 | 1090 |
| 3 | 1070 | 2400 | 19000 | 2850 | 2510 | 2610 | 1860 | 1230 | 1260 | 870 | 1150 | 1140 |
| 4 | 1280 | 2400 | 26500 | 3230 | 2500 | 2540 | 1640 | 1110 | 1220 | 870 | 1070 | 951 |
| 5 | 1260 | 2430 | 11100 | 3480 | 2460 | 2560 | 1860 | 1190 | 1200 | 870 | 822 | 951 |
| 6 | 1600 | 2480 | 9770 | 3270 | 2430 | 2530 | 2030 | 1400 | 1170 | 879 | 814 | 996 |
| 7 | 1100 | 2790 | 10400 | 3180 | 2450 | 2530 | 2190 | 1360 | 1100 | 870 | 1100 | 978 |
| 8 | 924 | 3090 | 9680 | 3440 | 2430 | 2510 | 2370 | 1690 | 933 | 987 | 1580 | 970 |
| 9 | 936 | 2970 | 7430 | 3270 | 2420 | 2540 | 2300 | 1350 | 951 | 951 | 1070 | 970 |
| 10 | 980 | 2530 | 5260 | 3160 | 2420 | 2540 | 1620 | 1460 | 951 | 924 | 1050 | 970 |
| 11 | 944 | 2430 | 3460 | 3460 | 2420 | 2580 | 1730 | 1960 | 933 | 897 | 915 | 970 |
| 12 | 920 | 2270 | 2290 | 3340 | 2450 | 2540 | 1610 | 1920 | 924 | 987 | 915 | 1000 |
| 13 | 873 | 2340 | 3310 | 3140 | 2500 | 2530 | 1530 | 1970 | 996 | 879 | 838 | 970 |
| 14 | 920 | 2640 | 3320 | 4930 | 2480 | 2420 | 1660 | 2080 | 924 | 879 | 870 | 970 |
| 15 | 952 | 3640 | 2870 | 13000 | 2460 | 2240 | 1650 | 2110 | 978 | 897 | 1190 | 1300 |
| 16 | 952 | 4600 | 2710 | 15700 | 2690 | 2180 | 1420 | 2180 | 1080 | 960 | 1380 | 1250 |
| 17 | 944 | 4120 | 2660 | 11400 | 2890 | 2320 | 1530 | 1850 | 1110 | 1120 | 1140 | 1200 |
| 18 | 1230 | 2710 | 2640 | 8620 | 3130 | 2590 | 1530 | 1660 | 1020 | 1170 | 1140 | 1190 |
| 19 | 1220 | 2460 | 2610 | 5470 | 2910 | 2750 | 1410 | 1360 | 1090 | 1310 | 1140 | 1190 |
| 20 | 1260 | 2430 | 2420 | 4040 | 2140 | 2730 | 1680 | 1620 | 1100 | 1530 | 1190 | 1080 |
| 21 | 1520 | 2420 | 2380 | 3220 | 2710 | 2730 | 1620 | 1470 | 996 | 2100 | 1100 | 1000 |
| 22 | 2380 | 2420 | 2560 | 2890 | 2660 | 2680 | 1480 | 1280 | 1100 | 1250 | 996 | 930 |
| 23 | 2080 | 2550 | 2780 | 2890 | 2730 | 2730 | 1400 | 1320 | 1180 | 960 | 1020 | 970 |
| 24 | 2050 | 2710 | 3090 | 2770 | 2800 | 3440 | 1510 | 1300 | 987 | 1020 | 969 | 970 |
| 25 | 1920 | 2680 | 3000 | 2640 | 2910 | 3220 | 1510 | 1310 | 1180 | 1310 | 1030 | 900 |
| 26 | 2270 | 2710 | 4440 | 2640 | 2910 | 2910 | 1400 | 1290 | 960 | 987 | 1190 | 900 |
| 27 | 2350 | 2730 | 6910 | 2590 | 3160 | 2840 | 1260 | 1300 | 897 | 1070 | 1050 | 900 |
| 28 | 2380 | 2610 | 5530 | 2480 | 3140 | 2690 | 1030 | 1320 | 1050 | 1080 | 933 | 900 |
| 29 | 2840 | 2520 | 3290 | 2510 | 2890 | 2560 | 1010 | 1300 | 933 | 1120 | 906 | 900 |
| 30 | 3100 | 2660 | 3420 | 1940 | --- | 2450 | 1090 | 1260 | 879 | 1060 | 897 | 896 |
| 31 | 2800 | --- | 3180 | 1710 | --- | 2620 | --- | 1220 | --- | 1040 | 924 | --- |
| TOTAL | 47049 | 81840 | 193130 | 133260 | 75410 | 81620 | 49710 | 46450 | 31602 | 32596 | 32579 | 30371 |
| MEAN | 1518 | 2728 | 6230 | 4299 | 2600 | 2633 | 1657 | 1498 | 1053 | 1051 | 1051 | 1012 |
| MAX | 3100 | 4600 | 26500 | 15700 | 3160 | 3440 | 2510 | 2180 | 1290 | 2100 | 1580 | 1300 |
| MIN | 873 | 2270 | 2290 | 1710 | 1650 | 2180 | 1010 | 1110 | 879 | 870 | 814 | 896 |
| AC-FT | 93320 | 162300 | 383100 | 264300 | 149600 | 161900 | 98600 | 92130 | 62680 | 64650 | 64620 | 60240 |

CAL YR 1975 TOTAL 863463 MEAN 2366 MAX 26500 MIN 545 AC-FT 1713000
WTR YR 1976 TOTAL 835617 MEAN 2283 MAX 26500 MIN 814 AC-FT 1657000

## 12089500 NISQUALLY RIVER AT MCKENNA, WA

LOCATION.--Lat 46°56'01", long 122°33'35", in SE¼NW¼ sec.28, T.17 N., R.2 E., Thurston County, Hydrologic Unit 17110015, at highway bridge at McKenna and 9.0 mi (14.5 km) downstream from Tanwax Creek at mile 21.8 (35.1 km).

DRAINAGE AREA.--517 mi² (1,339 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

REMARKS.--No discharge records available.

### WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|
| DEC , 1973<br>19... | 1300 | 50 | 6.9 | 5.8 | 9 | 12.0 | 410 |
| JAN , 1974<br>16... | 1340 | -- | -- | 4.4 | -- | 12.6 | -- |
| FEB<br>21... | 1220 | 45 | 7.1 | 5.0 | 10 | 12.4 | 140 |
| JUN<br>19... | 1205 | 47 | 7.4 | 10.7 | 2 | 11.0 | 130 |
| SEP<br>18... | 1440 | 55 | 8.0 | 15.8 | 10 | 10.7 | 80 |
| DEC<br>11... | 1025 | 65 | 7.1 | 7.6 | 9 | 11.4 | 340 |
| JAN , 1975<br>20... | 0935 | -- | -- | 5.7 | -- | 12.4 | -- |
| MAR<br>06... | 1030 | 55 | 6.8 | 3.8 | 4 | 12.6 | 40 |
| MAY<br>08... | 1210 | 53 | 6.6 | 9.6 | 2 | 11.9 | 22 |
| AUG<br>08... | 1100 | 58 | 7.2 | 13.1 | 7 | 10.8 | 73 |
| NOV<br>20... | 1245 | 45 | 7.1 | 7.0 | 10 | 12.0 | 418 |
| DEC<br>03... | 1210 | -- | -- | 7.6 | 25 | 11.7 | -- |
| FEB , 1976<br>19... | 1105 | 45 | 7.4 | 4.4 | 8 | 12.6 | 80 |
| MAY<br>19... | 1105 | 55 | 7.4 | 8.4 | 2 | 11.9 | 380 |
| SEP<br>22... | 1150 | 50 | 7.3 | 13.0 | 8 | 10.6 | B1800 |

B Results based upon colony counts outside the ideal range.

| DATE | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| DEC , 1973<br>19... | .21 | .01 | .22 | .07 | .13 | .04 | .01 |
| JAN , 1974<br>16... | -- | -- | -- | -- | -- | -- | -- |
| FEB<br>21... | .22 | .01 | .23 | .10 | .22 | .04 | .03 |
| JUN<br>19... | -- | -- | .01 | -- | -- | .02 | -- |
| SEP<br>18... | -- | -- | .01 | -- | -- | .04 | -- |
| DEC<br>11... | -- | -- | .16 | -- | -- | .04 | -- |
| JAN , 1975<br>20... | -- | -- | -- | -- | -- | -- | -- |
| MAR<br>06... | -- | -- | .22 | -- | -- | .03 | -- |
| MAY<br>08... | -- | -- | .12 | -- | -- | .02 | -- |
| AUG<br>08... | -- | -- | .02 | -- | -- | .02 | -- |
| NOV<br>20... | -- | -- | .12 | -- | -- | .03 | -- |
| DEC<br>03... | -- | -- | -- | -- | -- | -- | -- |
| FEB , 1976<br>19... | -- | -- | .24 | -- | -- | .04 | -- |
| MAY<br>19... | -- | -- | .08 | -- | -- | .02 | -- |
| SEP<br>22... | -- | -- | .01 | -- | -- | .04 | -- |

## 12090203 NISQUALLY LAKE NEAR ROY, WA

LOCATION.--Lat 47°01'21", long 122°37'34", in NE¼NW¼ sec.25, T.18 N., R.1 E., Pierce County, Hydrologic Unit 17110015, Fort Lewis Military Reservation, 4.3 mi (6.9 km) northwest of Roy.

PERIOD OF RECORD.--May to July 1976 (discontinued).

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | DISSOLVED OXYGEN (MG/L) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | | | |
| 21... | 1030 | 3.0 | 105 | 7.6 | 16.5 | -- | 9.3 | 36 | 1 | 9.0 |
| 21... | 1040 | 5.0 | 110 | 7.7 | 16.2 | -- | 9.2 | 37 | 0 | 9.0 |
| JUN | | | | | | | | | | |
| 11... | 1045 | 2.0 | 110 | 7.6 | 17.0 | 15 | 9.0 | -- | -- | -- |
| 11... | 1055 | 5.0 | 110 | 7.6 | 17.0 | 15 | 8.9 | -- | -- | -- |
| JUL | | | | | | | | | | |
| 26... | 1300 | 2.5 | 104 | 7.8 | 22.8 | 20 | 9.4 | -- | -- | -- |
| 26... | 1305 | 2.5 | 104 | 7.8 | 22.8 | 25 | 9.4 | -- | -- | -- |

| DATE | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | | |
| 21... | 3.4 | 4.7 | .8 | 43 | 35 | 5.4 | 2.8 | 13 | 60 |
| 21... | 3.5 | 4.7 | .8 | 48 | 39 | 5.5 | 2.8 | 13 | 63 |
| JUN | | | | | | | | | |
| 11... | -- | -- | -- | 44 | 36 | -- | -- | 12 | -- |
| 11... | -- | -- | -- | 44 | 36 | -- | -- | 12 | -- |
| JUL | | | | | | | | | |
| 26... | -- | -- | -- | 58 | 48 | -- | -- | 8.9 | -- |
| 26... | -- | -- | -- | 57 | 47 | -- | -- | 8.9 | -- |

| DATE | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L) | DISSOLVED IRON (FE) (UG/L) | DISSOLVED MANGANESE (MN) (UG/L) | POTENTIAL ALGAL GROWTH BOTTLE TEST (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | | |
| 21... | .02 | .00 | .06 | .36 | .02 | .00 | 0 | 0 | -- |
| 21... | .00 | .01 | .06 | .48 | .04 | .00 | 0 | 0 | .6 |
| JUN | | | | | | | | | |
| 11... | .01 | .00 | .05 | .44 | .02 | .00 | 20 | 10 | 1.9 |
| 11... | .00 | .00 | .05 | .40 | .02 | .00 | 20 | 0 | -- |
| JUL | | | | | | | | | |
| 26... | .00 | .00 | .09 | .57 | .04 | .00 | 30 | 0 | -- |
| 26... | .00 | .00 | .08 | .55 | .03 | .00 | 20 | 0 | .3 |

## 12090240 NISQUALLY RIVER AT NISQUALLY, WA

LOCATION.--Lat 47°03'43", long 122°41'42", in SW¼NW¼ sec.9, T.18 N., R.1 E., Pierce County, Hydrologic Unit 17110015, at old Pacific Highway bridge, 0.3 mi (0.5 km) northeast of Nisqually.

DRAINAGE AREA.--712 mi² (1,844 km²).

PERIOD OF RECORD.--Water years 1968 (partial-record station), 1973, October 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 15... | 0950 | 1240 | 62 | 7.2 | 11.9 | 46 | 28 | 10.5 | B500 |
| 21... | 1100 | 1500 | 66 | 7.4 | 10.9 | 75 | 23 | 10.7 | B700 |
| NOV | | | | | | | | | |
| 04... | 0815 | 3230 | 48 | 7.3 | 8.8 | 71 | 25 | 10.8 | 420 |
| 18... | 0955 | 3730 | 58 | 7.2 | 6.2 | 63 | 21 | 12.1 | B400 |
| DEC | | | | | | | | | |
| 02... | 0830 | 18200 | 56 | 6.0 | 8.3 | 121 | 150 | 11.6 | B5500 |
| 16... | 0815 | 3870 | 57 | 6.6 | 5.4 | 104 | 63 | 12.2 | 1700 |
| JAN | | | | | | | | | |
| 13... | 0920 | 4290 | 66 | 7.3 | 4.3 | 54 | 14 | 12.3 | B600 |
| 27... | 0920 | 1840 | 55 | 7.0 | 6.8 | 33 | 20 | 12.1 | B1400 |
| FEB | | | | | | | | | |
| 03... | 0920 | 3380 | 57 | 7.2 | 4.4 | 54 | 15 | 12.3 | B100 |
| 18... | 0915 | 3820 | 54 | 7.3 | 4.8 | 75 | 20 | 12.4 | B900 |
| MAR | | | | | | | | | |
| 02... | 0900 | 3470 | 63 | 7.3 | 3.5 | 75 | 10 | 12.8 | B200 |
| 17... | 0855 | 2750 | 66 | 7.3 | 6.8 | 29 | 7 | 12.1 | B120 |
| APR | | | | | | | | | |
| 06... | 0845 | 2740 | 67 | 7.3 | 8.1 | 50 | 15 | 12.0 | B120 |
| 20... | 0900 | 2370 | 70 | 7.5 | 8.4 | 38 | 8 | 11.8 | 100 |
| MAY | | | | | | | | | |
| 04... | 0910 | 1790 | 68 | 7.2 | 10.0 | 46 | 9 | 10.9 | B400 |
| 18... | 0900 | 2060 | 66 | 7.2 | 9.5 | 21 | 6 | 12.3 | B200 |
| JUN | | | | | | | | | |
| 02... | 0915 | 1740 | 66 | 7.2 | 9.8 | 18 | 3 | 11.8 | B100 |
| 15... | 0915 | 1300 | 70 | 7.5 | 13.4 | 21 | 4 | 10.7 | 280 |
| JUL | | | | | | | | | |
| 07... | 0900 | 1230 | 66 | 7.4 | 15.1 | 25 | 6 | 9.8 | 110 |
| 20... | 0915 | 1740 | 61 | 7.2 | 13.8 | 17 | 6 | 10.8 | 250 |
| AUG | | | | | | | | | |
| 03... | 0900 | 1220 | 62 | 7.3 | 13.0 | 13 | 2 | 10.0 | 150 |
| 17... | 0845 | 1060 | 66 | 7.4 | 12.2 | 29 | 5 | 10.0 | >200 |
| SEP | | | | | | | | | |
| 08... | 0830 | 1130 | 70 | 7.4 | 11.8 | 21 | 6 | 9.7 | B380 |
| 28... | 0845 | 1080 | 65 | 7.3 | 14.1 | -- | 13 | 9.3 | B280 |

B Results based upon colony counts outside the ideal range.

## 12090240 NISQUALLY RIVER AT NISQUALLY, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | FECAL COLI- FORM (COL. PER 100 ML) | HARD- NESS (CA,MG) (MG/L) | NON- CAR- BONATE HARD- NESS (MG/L) | DIS- SOLVED CAL- CIUM (CA) (MG/L) | DIS- SOLVED MAG- NE- SIUM (MG) (MG/L) | DIS- SOLVED SODIUM (NA) (MG/L) | DIS- SOLVED PO- TAS- SIUM (K) (MG/L) | BICAR- BONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 15... | B100 | 29 | 2 | 7.9 | 2.2 | 3.9 | 1.4 | 33 |
| 21... | <20 | 23 | 0 | 6.6 | 1.7 | 3.4 | 1.1 | 31 |
| NOV | | | | | | | | |
| 04... | B60 | 20 | 0 | 5.7 | 1.4 | 3.0 | .7 | 29 |
| 18... | B30 | 23 | 2 | 6.7 | 1.5 | 3.2 | 2.3 | 26 |
| DEC | | | | | | | | |
| 02... | B100 | 22 | 14 | 5.9 | 1.8 | 2.8 | 1.5 | 10 |
| 16... | 350 | 21 | 1 | 6.1 | 1.3 | 2.8 | .8 | 24 |
| JAN | | | | | | | | |
| 13... | <10 | 24 | 1 | 5.8 | 2.3 | 3.3 | 1.5 | 28 |
| 27... | B30 | 20 | 0 | 5.7 | 1.5 | 2.8 | 1.0 | 25 |
| FEB | | | | | | | | |
| 03... | B5 | 22 | 1 | 5.5 | 2.0 | 3.1 | 1.0 | 25 |
| 18... | B150 | 23 | 0 | 5.6 | 2.3 | 3.2 | 1.1 | 28 |
| MAR | | | | | | | | |
| 02... | 46 | 23 | 0 | 6.5 | 1.7 | 4.3 | 1.9 | 30 |
| 17... | B2 | 32 | 2 | 8.9 | 2.4 | 3.4 | .9 | 37 |
| APR | | | | | | | | |
| 06... | <10 | 24 | 0 | 6.5 | 1.9 | 4.4 | .9 | 31 |
| 20... | B4 | 25 | 0 | 6.4 | 2.2 | 3.7 | .9 | 37 |
| MAY | | | | | | | | |
| 04... | B22 | 25 | 0 | 5.9 | 2.5 | 3.5 | 1.0 | 33 |
| 18... | B2 | 24 | 0 | 6.6 | 1.8 | 4.3 | .8 | 35 |
| JUN | | | | | | | | |
| 02... | 68 | 24 | 0 | 6.3 | 2.0 | 3.8 | 1.2 | 31 |
| 15... | B4 | 23 | 0 | 6.1 | 2.0 | 4.0 | 1.2 | 32 |
| JUL | | | | | | | | |
| 07... | B16 | 23 | 0 | 5.9 | 1.9 | 3.5 | 1.1 | 34 |
| 20... | B22 | 24 | 0 | 7.1 | 1.5 | 3.1 | 1.5 | 30 |
| AUG | | | | | | | | |
| 03... | B32 | 23 | 0 | 6.1 | 1.8 | 3.4 | .7 | 32 |
| 17... | 42 | 23 | 0 | 6.2 | 1.9 | 3.9 | .7 | 33 |
| SEP | | | | | | | | |
| 08... | B8 | 22 | 0 | 5.7 | 2.0 | 4.7 | 1.3 | 34 |
| 28... | B5 | 22 | 0 | 5.8 | 1.9 | 4.1 | .9 | 33 |

B Results based upon colony counts outside the ideal range.

| DATE | ALKA- LINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DIS- SOLVED SULFATE (SO4) (MG/L) | DIS- SOLVED CHLO- RIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO- GEN (N) (MG/L) | TOTAL PHOS- PHORUS (P) (MG/L) | DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 15... | 27 | 3.3 | 4.2 | 2.4 | .09 | .22 | .07 | .01 |
| 21... | 25 | 2.0 | 4.1 | 1.9 | .10 | .16 | .06 | .01 |
| NOV | | | | | | | | |
| 04... | 24 | 2.3 | 3.2 | 1.5 | .21 | .13 | .07 | .01 |
| 18... | 21 | 2.6 | 4.4 | 2.3 | .15 | .07 | .05 | .01 |
| DEC | | | | | | | | |
| 02... | 8 | 16 | 14 | 1.8 | .15 | .07 | .46 | .01 |
| 16... | 20 | 9.6 | 4.5 | 1.9 | .23 | .32 | .15 | .01 |
| JAN | | | | | | | | |
| 13... | 23 | 2.2 | 3.2 | 3.2 | .30 | .14 | .05 | .01 |
| 27... | 21 | 4.0 | 4.1 | 1.5 | .29 | .12 | .06 | .01 |
| FEB | | | | | | | | |
| 03... | 21 | 2.5 | 3.5 | 1.8 | .27 | .16 | .05 | .01 |
| 18... | 23 | 2.2 | 2.9 | 2.6 | .28 | .11 | .07 | .02 |
| MAR | | | | | | | | |
| 02... | 25 | 2.4 | 3.3 | 2.0 | .29 | .06 | .04 | .01 |
| 17... | 30 | 3.0 | 3.9 | 2.2 | .23 | .06 | .02 | .00 |
| APR | | | | | | | | |
| 06... | 25 | 2.5 | 2.8 | 2.1 | .25 | .11 | .05 | .01 |
| 20... | 30 | 1.9 | 2.9 | 2.3 | .21 | .13 | .03 | .00 |
| MAY | | | | | | | | |
| 04... | 27 | 3.3 | 2.5 | 2.1 | .15 | .11 | .02 | .01 |
| 18... | 29 | 3.5 | 2.4 | 2.2 | .14 | .07 | .01 | .01 |
| JUN | | | | | | | | |
| 02... | 25 | 3.1 | 3.1 | 2.8 | .13 | .13 | .02 | .00 |
| 15... | 26 | 1.6 | 3.7 | 2.5 | .09 | .08 | .02 | .00 |
| JUL | | | | | | | | |
| 07... | 28 | 2.2 | 3.5 | 2.7 | .09 | .09 | .02 | .01 |
| 20... | 25 | 3.0 | 2.6 | 3.0 | .06 | .10 | .03 | .01 |
| AUG | | | | | | | | |
| 03... | 26 | 2.6 | 3.3 | 2.0 | .03 | .07 | .03 | .00 |
| 17... | 27 | 2.1 | 3.9 | 2.7 | .09 | .07 | .03 | .00 |
| SEP | | | | | | | | |
| 08... | 28 | 2.2 | 5.3 | 2.8 | .03 | .07 | .03 | .00 |
| 28... | 27 | 2.6 | 3.9 | 1.8 | .02 | .12 | .03 | .01 |

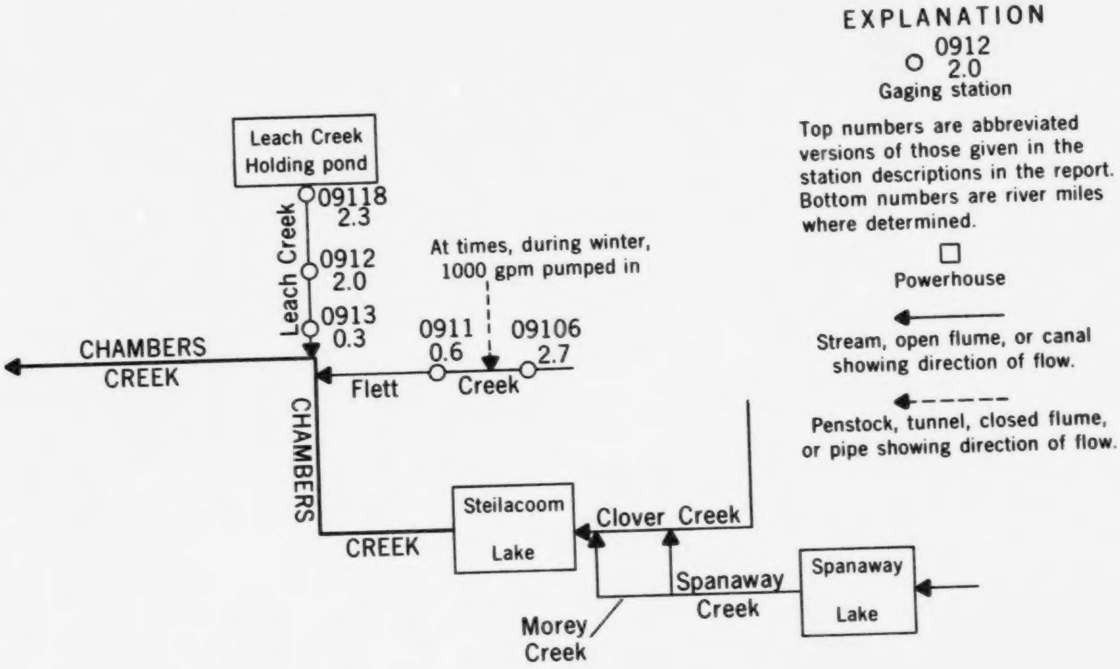
EXPLANATION
○ 0912 2.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
□
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Leach Creek Holding pond
09118 2.3
Leach Creek
0912 2.0
0913 0.3
At times, during winter, 1000 gpm pumped in
0911 0.6
09106 2.7
CHAMBERS CREEK
Flett Creek
CHAMBERS CREEK
Steilacoom Lake
Clover Creek
Spanaway Creek
Spanaway Lake
Morey Creek

Figure 9. Gaging stations in Chambers Creek basin.

### 12090600 CLOVER CREEK ABOVE STEILACOOM LAKE NEAR TACOMA, WA

LOCATION.--Lat 47°09'20", long 122°31'15", on North line NW¼ sec.11, T.19 N., R.2 E., Pierce County, Hydrologic Unit 17110019, at Clovercrest Drive bridge 0.4 mi (0.6 km) upstream from Steilacoom Lake and 2.2 mi (3.5 km) southwest of Tacoma.

DRAINAGE AREA.--75.9 mi² (196.6 km²).

PERIOD OF RECORD.--Water years 1963-65, October 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology. No discharge records available.

**WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976**

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 15... | 1145 | 2.4 | 96 | 8.5 | 11.7 | 38 | 6 |
| 21... | 1325 | 6.6 | 81 | 7.2 | 10.6 | 33 | 6 |
| NOV | | | | | | | |
| 04... | 1020 | 13 | 130 | 7.3 | 11.4 | 29 | 3 |
| 18... | 1205 | 29 | 120 | 7.2 | 6.8 | 54 | 5 |
| DEC | | | | | | | |
| 02... | 1050 | 55 | 80 | 7.1 | 10.0 | 50 | 10 |
| 16... | 1035 | 94 | 110 | 6.2 | 7.1 | 42 | 5 |
| JAN | | | | | | | |
| 13... | 1120 | 135 | 130 | 7.2 | 6.2 | 38 | 4 |
| 27... | 1105 | 140 | 110 | 7.2 | 7.6 | 25 | 5 |
| FEB | | | | | | | |
| 03... | 1055 | 112 | 110 | 7.1 | 6.5 | 33 | 10 |
| 18... | 1100 | 117 | 100 | 7.2 | 6.4 | 54 | 8 |
| MAR | | | | | | | |
| 02... | 1100 | 130 | 107 | 7.2 | 5.6 | 42 | 5 |
| 17... | 1045 | 75 | 107 | 7.5 | 9.2 | 25 | 6 |
| APR | | | | | | | |
| 06... | 1055 | 68 | 111 | 7.1 | 10.5 | 25 | 5 |
| 20... | 1055 | 65 | 119 | 7.8 | 10.7 | 33 | 3 |
| MAY | | | | | | | |
| 04... | 1050 | 58 | 108 | 7.5 | 12.0 | 38 | 6 |
| 18... | 1100 | 40 | 110 | 8.0 | 12.7 | 33 | 3 |
| JUN | | | | | | | |
| 02... | 1120 | 32 | 110 | 7.5 | 12.1 | 32 | 3 |
| 15... | 1115 | 22 | 110 | 8.3 | 14.0 | 33 | 2 |
| JUL | | | | | | | |
| 07... | 1055 | 16 | 118 | 7.4 | 16.6 | 33 | 2 |
| 20... | 1110 | 8.8 | 110 | 7.3 | 16.4 | 46 | 3 |
| AUG | | | | | | | |
| 03... | 1115 | 4.7 | 121 | 7.4 | 16.5 | 21 | 2 |
| 17... | 1045 | 8.2 | 115 | 7.4 | 14.5 | 33 | 2 |
| SEP | | | | | | | |
| 08... | 1100 | 6.6 | 120 | 7.5 | 13.1 | 21 | 1 |
| 28... | 1105 | 2.8 | 129 | 7.6 | 15.5 | -- | 3 |

| DATE | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 15... | 9.1 | B10000 | 640 | .89 | .10 | .06 | .01 |
| 21... | 10.2 | 10000 | 1600 | .75 | .08 | .04 | .01 |
| NOV | | | | | | | |
| 04... | 10.1 | B1400 | B150 | 1.4 | .06 | .04 | .01 |
| 18... | 11.4 | B700 | 70 | 1.3 | .05 | .05 | .01 |
| DEC | | | | | | | |
| 02... | 9.7 | 3500 | 180 | .91 | .08 | .19 | .01 |
| 16... | 10.2 | 2800 | B22 | 1.4 | .04 | .05 | .01 |
| JAN | | | | | | | |
| 13... | 10.8 | 4000 | 40 | 1.2 | .14 | .05 | .03 |
| 27... | 11.6 | B100 | 88 | 1.2 | .03 | .05 | .01 |
| FEB | | | | | | | |
| 03... | 10.4 | >960 | 38 | 1.3 | .18 | .05 | .02 |
| 18... | 11.4 | B2800 | 300 | .96 | .10 | .07 | .02 |
| MAR | | | | | | | |
| 02... | 12.0 | B300 | B40 | 1.1 | .12 | .04 | .01 |
| 17... | 11.3 | >1200 | B28 | .99 | .06 | .05 | .01 |
| APR | | | | | | | |
| 06... | 12.9 | B100 | B32 | .89 | .07 | .04 | .00 |
| 20... | 12.8 | 1000 | 82 | .83 | .18 | .04 | .01 |
| MAY | | | | | | | |
| 04... | 11.2 | B60 | <2 | .77 | .17 | .04 | .01 |
| 18... | 12.7 | >150 | 32 | .79 | .08 | .05 | .00 |
| JUN | | | | | | | |
| 02... | 12.3 | B600 | B32 | .73 | .15 | .04 | .00 |
| 15... | 10.1 | 1000 | 130 | .75 | .11 | .04 | .01 |
| JUL | | | | | | | |
| 07... | 9.2 | 1200 | B190 | .79 | .08 | .04 | .00 |
| 20... | 9.2 | >8000 | 440 | .77 | .16 | .04 | .01 |
| AUG | | | | | | | |
| 03... | 9.1 | 3700 | B150 | .48 | .11 | .03 | .00 |
| 17... | 9.4 | >3200 | 340 | .78 | .09 | .04 | .00 |
| SEP | | | | | | | |
| 08... | 9.9 | 3500 | B370 | .93 | .09 | .02 | .00 |
| 28... | 8.5 | 1600 | 600 | 1.1 | .09 | .04 | .01 |

B Results based upon colony counts outside the ideal range.

## 12091000 CHAMBERS CREEK BELOW STEILACOOM LAKE NEAR STEILACOOM, WA

LOCATION.--Lat 47°10'40", long 122°32'05", in SW¼NE¼ sec.34, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, at outlet of Steilacoom Lake at Steilacoom Drive, 1.4 mi (2.3 km) upstream from Flett Creek and 3 mi (4.8 km) northeast of Steilacoom.

DRAINAGE AREA.--89.4 mi² (231.5 km²).

PERIOD OF RECORD.--Water years 1963-64, December 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 15... | 1105 | 23 | 120 | 8.4 | 13.2 | 46 | 7 |
| 21... | 1235 | 24 | 130 | 7.4 | 12.2 | 25 | 7 |
| NOV | | | | | | | |
| 04... | 0945 | 37 | 130 | 8.0 | 11.0 | 21 | 5 |
| 18... | 1120 | 61 | 130 | 7.8 | 6.9 | 25 | 6 |
| DEC | | | | | | | |
| 02... | 1000 | 94 | 120 | 7.8 | 8.0 | 21 | 7 |
| 16... | 0955 | 156 | 120 | 7.0 | 5.9 | 33 | 5 |
| JAN | | | | | | | |
| 13... | 1050 | 210 | 120 | 7.3 | 5.8 | 25 | 4 |
| 27... | 1030 | 220 | 110 | 7.1 | 7.8 | 90 | 5 |
| FEB | | | | | | | |
| 03... | 1020 | 185 | 120 | 7.1 | 6.8 | 29 | 5 |
| 18... | 1025 | 165 | 118 | 7.3 | 6.8 | 25 | 6 |
| MAR | | | | | | | |
| 02... | 1020 | 174 | 120 | 7.5 | 6.4 | 29 | 8 |
| 17... | 1005 | 120 | 120 | 8.7 | 9.3 | 21 | 5 |
| APR | | | | | | | |
| 06... | 1025 | 110 | 121 | 8.7 | 11.5 | 21 | 6 |
| 20... | 1015 | 107 | 118 | 8.1 | 11.0 | 21 | 5 |
| MAY | | | | | | | |
| 04... | 1015 | 88 | 119 | 8.2 | 14.4 | 21 | 5 |
| 18... | 1025 | 64 | 118 | 8.6 | 15.5 | 21 | 5 |
| JUN | | | | | | | |
| 02... | 1045 | 54 | 124 | 7.6 | 14.5 | 27 | 4 |
| 15... | 1030 | 31 | 120 | 9.0 | 17.5 | 29 | 4 |
| JUL | | | | | | | |
| 07... | 1015 | 29 | 126 | 9.1 | 20.7 | 33 | 3 |
| 20... | 1030 | 23 | 128 | 7.7 | 21.2 | 25 | 3 |
| AUG | | | | | | | |
| 03... | 1025 | 15 | 131 | 7.5 | 21.4 | 25 | 2 |
| 17... | 1005 | 24 | 130 | 8.5 | 17.9 | 25 | 2 |
| SEP | | | | | | | |
| 08... | 1015 | 14 | 130 | 8.5 | 17.8 | 21 | 2 |
| 28... | 1020 | 16 | 131 | 8.8 | 18.4 | -- | 3 |

| DATE | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 15... | 12.2 | B300 | B20 | .10 | .16 | .10 | .00 |
| 21... | 12.2 | B600 | B10 | .02 | .08 | .08 | .00 |
| NOV | | | | | | | |
| 04... | 12.3 | B20 | B8 | .32 | .06 | .06 | .00 |
| 18... | 13.3 | B80 | B18 | .45 | .06 | .04 | .00 |
| DEC | | | | | | | |
| 02... | 12.6 | B180 | B15 | .64 | .07 | .07 | .00 |
| 16... | 12.6 | 290 | B6 | 1.0 | .07 | .05 | .00 |
| JAN | | | | | | | |
| 13... | 12.0 | 400 | B4 | 1.2 | .09 | .05 | .02 |
| 27... | 11.5 | 520 | -- | 1.2 | .10 | .05 | .00 |
| FEB | | | | | | | |
| 03... | 12.0 | B140 | B8 | 1.2 | .13 | .05 | .01 |
| 18... | 13.3 | B180 | B15 | 1.0 | .07 | .06 | .00 |
| MAR | | | | | | | |
| 02... | 14.6 | B50 | B12 | .88 | .09 | .04 | .02 |
| 17... | 16.0 | B30 | B4 | .84 | .11 | .04 | .00 |
| APR | | | | | | | |
| 06... | 16.4 | <10 | B5 | .64 | .12 | .04 | .00 |
| 20... | 14.0 | B30 | <2 | .54 | .16 | .04 | .00 |
| MAY | | | | | | | |
| 04... | 13.4 | 1000 | B30 | .55 | .14 | .03 | .00 |
| 18... | 13.5 | <20 | <2 | .25 | .12 | .05 | .00 |
| JUN | | | | | | | |
| 02... | 13.0 | B200 | B5 | .35 | .15 | .04 | .00 |
| 15... | 14.3 | B10 | -- | .36 | .10 | .04 | .00 |
| JUL | | | | | | | |
| 07... | 11.2 | B24 | <2 | .22 | .13 | .03 | .01 |
| 20... | 9.3 | B3 | B2 | .27 | .21 | .04 | .00 |
| AUG | | | | | | | |
| 03... | 9.4 | B4 | B2 | .16 | .15 | .04 | .00 |
| 17... | 10.9 | >80 | B20 | .01 | .11 | .06 | .00 |
| SEP | | | | | | | |
| 08... | 10.0 | B440 | B16 | .00 | .11 | .06 | .00 |
| 28... | 11.6 | B850 | 54 | .00 | .07 | .07 | .00 |

B Results based upon colony counts outside the ideal range.

## 12091060 FLETT CREEK AT MOUNTAIN VIEW MEMORIAL PARK, AT TACOMA, WA

LOCATION.--Lat 47°11'06", long 122°29'17", in NW¼NE¼ sec.36, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on right bank 0.4 mi (0.6 km) downstream from 74th Street crossing in Tacoma and 2.7 mi (4.3 km) upstream from mouth.

DRAINAGE AREA.--5.91 mi² (15.31 km²), excludes 0.68 mi² (1.76 km²) storm drainage diverted to Leach Creek basin but does not include some urban storm drainage diverted into the basin.

PERIOD OF RECORD.--July 1967 to current year.

GAGE.--Water-stage recorder and metal V-notch control. Altitude of gage is 235 ft (71.6 m), from topographic map.

REMARKS.--Records fair. No regulation. Storm sewer drainage above station. Several diversions for irrigation and industrial use above station.

AVERAGE DISCHARGE.--9 years, 4.66 ft³/s (0.132 m³/s), 3,380 acre-ft/yr (4.17 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 103 ft³/s (2.92 m³/s) Mar. 5, 1972, gage height, 3.53 ft (1.076 m); maximum gage height, 3.73 ft (1.137 m) Jan. 18, 1972, backwater from road construction; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 56 ft³/s (1.59 m³/s) Dec. 4, gage height, 2.77 ft (0.844 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 5.7 | 15 | 18 | 3.0 | 12 | 5.1 | 1.2 | .07 | 0 | 0 | 0 |
| 2 | 0 | 3.7 | 26 | 9.7 | 2.4 | 8.5 | 4.5 | 3.7 | .02 | 0 | 0 | 0 |
| 3 | 0 | 2.4 | 40 | 6.7 | 2.2 | 6.4 | 3.7 | 3.5 | .01 | 0 | 0 | 0 |
| 4 | 0 | 1.3 | 39 | 12 | 1.7 | 4.8 | 3.0 | 2.8 | 0 | 0 | 0 | 0 |
| 5 | .25 | .41 | 27 | 16 | 1.5 | 4.0 | 2.4 | 1.7 | 0 | 0 | 0 | 0 |
| 6 | 0 | .41 | 26 | 14 | 1.3 | 3.3 | 2.2 | .98 | 0 | 0 | 0 | 0 |
| 7 | 0 | 2.8 | 33 | 13 | .98 | 2.8 | 1.9 | .54 | 0 | 0 | 0 | 0 |
| 8 | 0 | 7.4 | 30 | 12 | .98 | 2.4 | 2.1 | .27 | 0 | .29 | 0 | 0 |
| 9 | 0 | 8.1 | 25 | 11 | .79 | 2.2 | 1.7 | .08 | 0 | 0 | 0 | 0 |
| 10 | 0 | 6.0 | 24 | 12 | .86 | 2.6 | 1.5 | .42 | 0 | 0 | 0 | 0 |
| 11 | 0 | 3.5 | 23 | 16 | 1.9 | 2.2 | 4.8 | .04 | 0 | 0 | 0 | 0 |
| 12 | 0 | 1.9 | 20 | 19 | 2.6 | 2.1 | 4.0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 2.4 | 14 | 16 | 4.0 | 2.1 | 3.3 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 12 | 9.3 | 32 | 6.4 | 2.4 | 3.3 | 0 | 0 | 0 | .02 | .02 |
| 15 | 0 | 19 | 7.4 | 34 | 6.4 | 2.1 | 3.5 | 0 | 0 | 0 | 1.9 | 0 |
| 16 | 0 | 17 | 6.0 | 27 | 12 | 1.9 | 3.7 | 0 | 0 | 0 | .01 | 0 |
| 17 | .76 | 14 | 4.5 | 26 | 16 | 1.5 | 3.0 | 0 | 0 | 0 | 0 | 0 |
| 18 | 1.3 | 9.3 | 3.3 | 25 | 21 | 2.1 | 2.2 | 0 | 0 | 0 | 0 | 0 |
| 19 | 4.3 | 6.4 | 2.2 | 23 | 19 | .88 | 2.1 | 0 | 0 | 0 | 0 | 0 |
| 20 | 3.3 | 4.3 | 1.7 | 21 | 14 | 1.1 | 2.8 | 0 | 0 | 0 | 0 | 0 |
| 21 | 4.5 | 2.8 | 1.5 | 14 | 8.5 | 1.3 | 2.8 | 0 | 0 | 0 | 0 | 0 |
| 22 | 2.8 | 3.5 | 3.0 | 9.7 | 6.0 | 6.4 | 2.6 | 0 | 0 | 0 | 0 | 0 |
| 23 | 1.6 | 8.1 | 6.0 | 7.7 | 4.8 | 7.7 | 2.8 | 0 | 0 | 0 | 0 | 0 |
| 24 | .62 | 8.9 | 8.9 | 6.0 | 7.0 | 13 | 4.8 | 0 | 0 | 0 | 0 | 0 |
| 25 | 1.9 | 6.7 | 14 | 5.1 | 9.3 | 12 | 4.3 | 0 | 0 | 0 | 0 | 0 |
| 26 | 1.7 | 11 | 24 | 5.1 | 12 | 13 | 4.0 | 0 | 0 | 0 | 0 | 0 |
| 27 | 3.7 | 12 | 24 | 12 | 16 | 11 | 3.0 | 0 | 0 | 0 | 0 | .66 |
| 28 | 7.4 | 9.7 | 23 | 12 | 19 | 8.9 | 2.1 | 0 | 0 | 0 | 0 | 4.4 |
| 29 | 15 | 6.7 | 26 | 8.5 | 16 | 6.7 | 1.5 | .01 | 0 | 0 | 0 | .70 |
| 30 | 17 | 8.9 | 23 | 5.1 | --- | 5.1 | 1.1 | 0 | 0 | 0 | 0 | .02 |
| 31 | 11 | --- | 21 | 4.0 | --- | 6.0 | --- | .07 | --- | 0 | 0 | --- |
| TOTAL | 77.13 | 206.32 | 550.8 | 452.6 | 217.63 | 158.48 | 89.8 | 15.31 | .10 | .29 | 1.93 | 5.80 |
| MEAN | 2.49 | 6.88 | 17.8 | 14.6 | 7.50 | 5.11 | 2.99 | .49 | .003 | .009 | .062 | .19 |
| MAX | 17 | 19 | 40 | 34 | 21 | 13 | 5.1 | 3.7 | .07 | .29 | 1.9 | 4.4 |
| MIN | 0 | .41 | 1.5 | 4.0 | .79 | .88 | 1.1 | 0 | 0 | 0 | 0 | 0 |
| CFSM | .42 | 1.16 | 3.01 | 2.47 | 1.27 | .86 | .51 | .08 | 0 | .001 | .01 | .03 |
| IN. | .49 | 1.30 | 3.47 | 2.85 | 1.37 | 1.00 | .57 | .10 | .0006 | .002 | .01 | .04 |
| AC-FT | 153 | 409 | 1090 | 898 | 432 | 314 | 178 | 30 | .2 | .6 | 3.8 | 12 |

CAL YR 1975 TOTAL 2354.74 MEAN 6.45 MAX 57 MIN 0 CFSM 1.09 IN 14.82 AC-FT 4670
WTR YR 1976 TOTAL 1776.19 MEAN 4.85 MAX 40 MIN 0 CFSM .82 IN 11.18 AC-FT 3520

## 12091098 FLETT CREEK AT CUSTER ROAD AT TACOMA, WA

LOCATION.--Lat 47°11'11", long 122°31'05", in SE¼SW¼ sec.26, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, at Custer Road Bridge, 0.3 mi (0.5 km) upstream from gage, 0.5 mi (0.8 km) west of Tacoma, and 0.9 mi (1.4 km) upstream from mouth.

DRAINAGE AREA.--7.33 mi² (18.98 km²).

PERIOD OF RECORD.--Water years 1963-65, October 1975 to September 1976 (discontinued).

REMARKS.--Prior to October 1975 records published as 12091100, Flett Creek at Tacoma.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 15... | 1055 | 2.5 | 200 | 7.4 | 11.3 | 75 | 5 |
| 21... | 1215 | 7.5 | 120 | 6.9 | 11.1 | 125 | 5 |
| NOV | | | | | | | |
| 04... | 0930 | 6.8 | 180 | 6.6 | 10.8 | 133 | 3 |
| 18... | 1105 | 18 | 140 | 6.6 | 5.7 | 21 | 3 |
| DEC | | | | | | | |
| 02... | 0950 | 28 | 112 | 6.7 | 9.2 | 129 | 15 |
| 16... | 0940 | 16 | 180 | 6.1 | 6.5 | 92 | 3 |
| JAN | | | | | | | |
| 13... | 1040 | 29 | 130 | 6.7 | 5.4 | 92 | 5 |
| 27... | 1015 | 29 | 140 | 7.4 | 8.1 | 100 | 10 |
| FEB | | | | | | | |
| 03... | 1015 | 13 | 180 | 6.6 | 8.0 | 102 | 10 |
| 18... | 1015 | 33 | 116 | 6.7 | 5.7 | 113 | 12 |
| MAR | | | | | | | |
| 02... | 1010 | 21 | 150 | 6.6 | 6.0 | 100 | 8 |
| 17... | 0955 | 11 | 200 | 6.7 | 10.4 | 71 | 5 |
| APR | | | | | | | |
| 06... | 1010 | 11 | 165 | 6.8 | 11.1 | 85 | 20 |
| 20... | 1005 | 12 | 168 | 6.8 | 10.8 | 95 | 4 |
| MAY | | | | | | | |
| 04... | 1005 | 9.0 | 168 | 6.6 | 12.2 | 90 | 5 |
| 18... | 1000 | 7.0 | 220 | 6.9 | 11.7 | 42 | 4 |
| JUN | | | | | | | |
| 02... | 1035 | 5.9 | 220 | 7.1 | 12.0 | 60 | 3 |
| 15... | 1020 | 4.2 | 212 | 7.3 | 13.2 | 42 | 2 |
| JUL | | | | | | | |
| 07... | 1005 | 2.9 | 240 | 6.9 | 15.7 | 65 | 2 |
| 20... | 1015 | 2.8 | 220 | 7.0 | 15.5 | 67 | 3 |
| AUG | | | | | | | |
| 03... | 1010 | 1.2 | 282 | 7.0 | 15.6 | 58 | 1 |
| 17... | 0950 | 3.4 | 185 | 6.9 | 13.2 | 75 | 1 |
| SEP | | | | | | | |
| 08... | 0955 | 2.2 | 250 | 6.9 | 11.7 | 33 | 1 |
| 28... | 1005 | 2.8 | 250 | 6.9 | 14.1 | -- | 3 |

| DATE | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 15... | 3.9 | 6800 | 130 | 1.7 | .13 | .06 | .04 |
| 21... | 4.9 | B6500 | 250 | .76 | .16 | .11 | .04 |
| NOV | | | | | | | |
| 04... | 2.6 | B500 | B5 | 1.5 | .15 | .11 | .04 |
| 18... | 6.4 | >3000 | B670 | 1.2 | .24 | .11 | .04 |
| DEC | | | | | | | |
| 02... | 7.2 | 4400 | B120 | .95 | .24 | .15 | .12 |
| 16... | 5.5 | 2600 | B18 | 2.1 | .16 | .11 | .06 |
| JAN | | | | | | | |
| 13... | 8.2 | 2400 | B85 | 1.3 | .18 | .12 | .07 |
| 27... | 6.1 | B15000 | 420 | 1.2 | .30 | .25 | .16 |
| FEB | | | | | | | |
| 03... | 5.0 | B1000 | B85 | 2.2 | .28 | .13 | .08 |
| 18... | 8.8 | 4000 | 560 | .81 | .32 | .18 | .09 |
| MAR | | | | | | | |
| 02... | 7.0 | B900 | 120 | 1.3 | .26 | .12 | .04 |
| 17... | 5.5 | B450 | 44 | 2.3 | .18 | .12 | .06 |
| APR | | | | | | | |
| 06... | 6.6 | B1000 | 98 | 1.7 | .18 | .13 | .05 |
| 20... | 7.3 | 1300 | 130 | 1.4 | .23 | .12 | .04 |
| MAY | | | | | | | |
| 04... | 5.7 | 6800 | 48 | 1.6 | .36 | .11 | .04 |
| 18... | 10.1 | 4900 | 40 | 2.2 | .10 | .07 | .03 |
| JUN | | | | | | | |
| 02... | 10.5 | B850 | 280 | 1.9 | .12 | .09 | .05 |
| 15... | 6.6 | 330 | B85 | 2.1 | .13 | .12 | .08 |
| JUL | | | | | | | |
| 07... | 4.4 | 1200 | 210 | 1.8 | .14 | .17 | .09 |
| 20... | 3.9 | 2100 | B190 | 1.8 | .18 | .12 | .07 |
| AUG | | | | | | | |
| 03... | 4.2 | 960 | B160 | 1.2 | .18 | .11 | .04 |
| 17... | 3.4 | B750 | B160 | 1.6 | .14 | .16 | .06 |
| SEP | | | | | | | |
| 08... | 4.4 | B1100 | 40 | 2.0 | .10 | .10 | .04 |
| 28... | 3.2 | B760 | B26 | 1.5 | .20 | .22 | .13 |

B Results based upon colony counts outside the ideal range.

## 12091100 FLETT CREEK AT TACOMA, WA

LOCATION.--Lat 47°11'23", long 122°31'08", in NE¼SW¼ sec.26, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on right bank at 75th Street, 0.6 mi (1.0 km) upstream from mouth and 0.7 mi (1.1 km) west of city limits of Tacoma.

DRAINAGE AREA.--7.33 mi² (18.98 km²) excludes 0.68 mi² (1.76 km²) storm drainage diverted to Leach Creek basin but does not include some urban storm drainage diverted into the basin.

PERIOD OF RECORD.--June 1959 to current year. Chemical analyses October 1964 to September 1965.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 200 ft (61 m), from topographic map.

REMARKS.--Records good except those for March through July, which are fair. Storm sewer drainage above station. Several diversions for irrigation and industrial use. At times, during winter months, 1,000 gpm (0.063 m³/s) is pumped into creek for short intervals from Mountain View Memorial Park.

AVERAGE DISCHARGE.--17 years, 8.87 ft³/s (0.251 m³/s), 6,430 acre-ft/yr (7.93 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 132 ft³/s (3.74 m³/s) Mar. 5, 1972, gage height, 2.97 ft (0.905 m), from rating curve extended above 45 ft³/s (1.27 m³/s) on basis of computation of peak flow over weir at gage height 2.82 ft (0.860 m); minimum, 0.29 ft³/s (0.008 m³/s) Aug. 27, 1967; minimum gage height, 1.32 ft (0.402 m) Sept. 8, 10, 12, 16, 1969, Sept. 16, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 69 ft³/s (1.95 m³/s) Dec. 2, gage height, 2.78 ft (0.847 m); minimum discharge, 1.1 ft³/s (0.031 m³/s) Aug. 7, gage height, 1.42 ft (0.433 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.8 | 14 | 22 | 28 | 14 | 24 | 14 | 8.3 | 6.6 | 2.5 | 1.3 | 2.4 |
| 2 | 1.6 | 10 | 29 | 22 | 13 | 20 | 13 | 11 | 5.9 | 2.3 | 1.2 | 2.3 |
| 3 | 2.4 | 8.5 | 35 | 18 | 12 | 18 | 12 | 9.4 | 5.3 | 2.7 | 1.2 | 2.0 |
| 4 | 2.7 | 6.8 | 35 | 22 | 12 | 16 | 12 | 9.0 | 5.0 | 3.0 | 1.2 | 1.9 |
| 5 | 3.3 | 5.6 | 31 | 25 | 12 | 14 | 11 | 7.7 | 4.8 | 2.9 | 1.2 | 2.0 |
| 6 | 2.8 | 5.1 | 30 | 25 | 11 | 14 | 11 | 7.0 | 4.8 | 3.0 | 1.2 | 2.1 |
| 7 | 2.4 | 7.0 | 33 | 24 | 11 | 13 | 10 | 6.6 | 4.8 | 3.5 | 1.5 | 2.1 |
| 8 | 2.3 | 10 | 34 | 23 | 11 | 13 | 11 | 6.6 | 4.7 | 4.7 | 2.2 | 2.2 |
| 9 | 3.0 | 12 | 31 | 22 | 10 | 12 | 10 | 6.4 | 4.7 | 3.3 | 2.1 | 2.2 |
| 10 | 2.7 | 12 | 31 | 23 | 10 | 13 | 9.6 | 6.4 | 4.7 | 3.0 | 2.0 | 2.1 |
| 11 | 2.5 | 9.8 | 29 | 28 | 12 | 12 | 13 | 5.9 | 4.7 | 3.3 | 1.7 | 2.1 |
| 12 | 2.4 | 8.3 | 28 | 32 | 13 | 12 | 11 | 5.9 | 4.7 | 3.3 | 1.7 | 2.1 |
| 13 | 2.3 | 8.5 | 26 | 29 | 12 | 12 | 10 | 5.9 | 4.5 | 3.0 | 1.7 | 2.1 |
| 14 | 2.5 | 17 | 21 | 44 | 15 | 12 | 9.8 | 5.7 | 4.5 | 2.8 | 3.3 | 4.1 |
| 15 | 2.5 | 22 | 18 | 55 | 15 | 12 | 11 | 5.8 | 4.7 | 2.8 | 5.1 | 2.9 |
| 16 | 2.8 | 25 | 16 | 43 | 22 | 12 | 10 | 5.8 | 4.4 | 2.7 | 4.2 | 2.7 |
| 17 | 3.7 | 22 | 14 | 41 | 25 | 11 | 10 | 5.9 | 4.1 | 2.5 | 3.3 | 2.5 |
| 18 | 4.4 | 18 | 13 | 39 | 33 | 13 | 9.8 | 6.1 | 3.9 | 2.7 | 3.0 | 2.4 |
| 19 | 6.4 | 14 | 11 | 38 | 29 | 11 | 9.8 | 6.1 | 3.5 | 2.7 | 3.1 | 2.3 |
| 20 | 6.6 | 12 | 11 | 36 | 25 | 11 | 11 | 5.8 | 3.5 | 2.8 | 3.0 | 2.3 |
| 21 | 7.7 | 11 | 11 | 31 | 20 | 11 | 10 | 5.8 | 3.3 | 2.5 | 2.8 | 2.3 |
| 22 | 7.0 | 11 | 12 | 24 | 17 | 17 | 10 | 5.9 | 3.2 | 2.1 | 2.8 | 2.8 |
| 23 | 6.3 | 15 | 14 | 21 | 15 | 17 | 10 | 5.9 | 3.1 | 1.9 | 2.8 | 2.5 |
| 24 | 5.3 | 16 | 17 | 19 | 18 | 23 | 14 | 6.4 | 3.1 | 2.1 | 2.8 | 2.2 |
| 25 | 5.9 | 15 | 21 | 17 | 20 | 21 | 12 | 6.6 | 3.0 | 2.2 | 3.0 | 2.1 |
| 26 | 6.3 | 18 | 34 | 17 | 23 | 21 | 12 | 6.4 | 3.0 | 2.1 | 2.8 | 2.1 |
| 27 | 6.6 | 19 | 34 | 26 | 28 | 20 | 11 | 6.8 | 2.9 | 1.6 | 2.7 | 2.1 |
| 28 | 9.0 | 17 | 32 | 24 | 30 | 18 | 9.4 | 6.3 | 2.9 | 1.5 | 2.7 | 3.3 |
| 29 | 16 | 14 | 34 | 21 | 29 | 16 | 8.5 | 7.3 | 2.8 | 1.5 | 2.7 | 4.4 |
| 30 | 21 | 17 | 34 | 17 | --- | 14 | 7.9 | 7.2 | 2.8 | 1.5 | 2.7 | 3.5 |
| 31 | 19 | --- | 30 | 15 | --- | 15 | --- | 7.0 | --- | 1.3 | 2.7 | --- |
| TOTAL | 171.2 | 400.6 | 771 | 849 | 517 | 468 | 323.8 | 208.9 | 123.9 | 79.8 | 75.7 | 74.1 |
| MEAN | 5.52 | 13.4 | 24.9 | 27.4 | 17.8 | 15.1 | 10.8 | 6.74 | 4.13 | 2.57 | 2.44 | 2.47 |
| MAX | 21 | 25 | 35 | 55 | 33 | 24 | 14 | 11 | 6.6 | 4.7 | 5.1 | 4.4 |
| MIN | 1.6 | 5.1 | 11 | 15 | 10 | 11 | 7.9 | 5.7 | 2.8 | 1.3 | 1.2 | 1.9 |
| AC-FT | 340 | 795 | 1530 | 1680 | 1030 | 928 | 642 | 414 | 246 | 158 | 150 | 147 |

CAL YR 1975 TOTAL 4653.65 MEAN 12.7 MAX 64 MIN .70 AC-FT 9230
WTR YR 1976 TOTAL 4063.00 MEAN 11.1 MAX 55 MIN 1.2 AC-FT 8060

## 12091180 LEACH CREEK AT HOLDING POND, AT FIRCREST, WA

LOCATION.--Lat 47°13'29", long 122°30'32", in NE¼NE¼ sec.14, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on right bank at holding pond dam, 0.8 mi (1.3 km) south of Fircrest, and 2.3 mi (3.7 km) upstream from mouth.

DRAINAGE AREA.--4.59 mi² (11.89 km²), includes 0.68 mi² (1.76 km²) storm drainage from Flett Creek basin.

PERIOD OF RECORD.--July 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 200 ft (61 m) above mean sea level (levels by city of Tacoma).

REMARKS.--Records good except those for period of no gage-height record, which are fair. Drainage into upper end of basin influenced by urbanizing of area. Flow can be regulated by manually operated gate in flood control dam. Storage is not retained and observed annual runoff closely represents natural runoff of basin. No known diversion above station.

AVERAGE DISCHARGE.--9years, 3.93 ft³/s (0.111 m³/s), 2,850 acre-ft/yr (3.51 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge recorded, 114 ft³/s (3.23 m³/s) Mar. 5, 1972, gage height, 11.95 ft (3.642 m), from rating curve extended above 45 ft³/s (1.27 m³/s); minimum, 0.34 ft³/s (0.010 m³/s) Mar. 1, 2, 1969, gage height, 7.63 ft (2.326 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 48 ft³/s (1.36 m³/s) Dec. 2, gage height, 10.19 ft (3.106 m); minimum daily, 1.1 ft³/s (0.031 m³/s) July 24, 25, 31, Aug. 1, 10-12, 22, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.7 | 1.8 | 11 | 2.5 | 2.4 | 2.5 | 1.8 | 2.5 | 2.0 | 1.7 | 1.1 | 1.2 |
| 2 | 1.7 | 6.2 | 28 | 2.4 | 2.4 | 2.0 | 1.7 | 9.0 | 1.6 | 1.4 | 1.2 | 1.2 |
| 3 | 8.7 | 2.9 | 43 | 5.1 | 3.3 | 1.8 | 1.6 | 1.8 | 1.5 | 2.2 | 1.2 | 1.3 |
| 4 | 6.3 | 1.9 | 32 | 16 | 2.4 | 1.7 | 1.5 | 2.1 | 1.4 | 3.0 | 1.3 | 1.2 |
| 5 | 21 | 2.1 | 4.1 | 10 | 2.3 | 1.7 | 1.6 | 1.9 | 1.4 | 1.2 | 1.2 | 1.8 |
| 6 | 7.9 | 5.6 | 3.0 | 3.5 | 2.4 | 1.6 | 2.2 | 1.8 | 1.4 | 1.2 | 1.3 | 1.2 |
| 7 | 2.8 | 16 | 18 | 10 | 2.3 | 2.0 | 1.7 | 1.8 | 1.4 | 5.5 | 4.6 | 1.2 |
| 8 | 2.2 | 15 | 16 | 9.3 | 2.9 | 1.7 | 2.8 | 1.7 | 1.4 | 11 | 2.0 | 1.4 |
| 9 | 10 | 2.3 | 4.7 | 4.3 | 2.4 | 1.7 | 1.9 | 1.7 | 1.4 | 1.4 | 1.4 | 1.4 |
| 10 | 3.7 | 1.9 | 4.9 | 15 | 2.3 | 3.4 | 1.7 | 3.4 | 1.4 | 1.3 | 1.1 | 1.4 |
| 11 | 1.7 | 1.9 | 2.8 | 15 | 9.8 | 1.7 | 8.9 | 1.8 | 1.4 | 1.2 | 1.1 | 1.3 |
| 12 | 1.5 | 1.8 | 3.1 | 8.2 | 3.9 | 1.8 | 1.7 | 1.6 | 1.4 | 1.2 | 1.1 | 1.2 |
| 13 | 1.5 | 10 | 6.8 | 4.3 | 6.1 | 2.1 | 2.3 | 1.6 | 1.4 | 1.3 | 1.7 | 1.3 |
| 14 | 6.8 | 28 | 3.3 | 36 | 9.8 | 3.5 | 5.8 | 1.6 | 1.4 | 1.2 | 11 | 15 |
| 15 | 3.0 | 18 | 3.5 | 38 | 4.5 | 1.6 | 2.2 | 1.6 | 3.6 | 1.2 | 31 | 1.6 |
| 16 | 6.6 | 11 | 2.5 | 11 | 16 | 2.0 | 1.6 | 1.5 | 1.8 | 1.3 | 9.3 | 1.4 |
| 17 | 13 | 5.2 | 2.4 | 4.7 | 12 | 3.0 | 1.6 | 1.4 | 1.6 | 1.2 | 1.4 | 1.4 |
| 18 | 2.7 | 2.1 | 2.4 | 3.5 | 12 | 5.2 | 1.8 | 1.4 | 1.5 | 1.2 | 1.2 | 1.3 |
| 19 | 11 | 2.0 | 2.3 | 3.2 | 3.8 | 1.7 | 4.9 | 1.4 | 1.5 | 1.2 | 4.0 | 1.2 |
| 20 | 2.2 | 1.9 | 2.2 | 3.0 | 2.8 | 2.2 | 4.4 | 1.4 | 1.4 | 2.0 | 1.9 | 1.2 |
| 21 | 8.7 | 1.8 | 3.3 | 2.8 | 2.5 | 1.5 | 1.7 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 |
| 22 | 1.9 | 7.5 | 7.2 | 6.1 | 2.4 | 12 | 1.7 | 1.4 | 1.4 | 1.2 | 1.1 | 2.4 |
| 23 | 1.7 | 15 | 10 | 2.9 | 3.1 | 3.6 | 3.7 | 1.4 | 1.4 | 1.2 | 2.7 | 1.6 |
| 24 | 2.2 | 2.4 | 6.4 | 2.6 | 14 | 10 | 7.7 | 2.7 | 1.4 | 1.1 | 2.1 | 1.5 |
| 25 | 10 | 2.4 | 17 | 2.5 | 11 | 2.0 | 1.7 | 1.7 | 1.4 | 1.1 | 2.9 | 1.5 |
| 26 | 4.8 | 20 | 38 | 6.3 | 8.0 | 5.8 | 1.7 | 2.0 | 1.4 | 1.2 | 1.3 | 1.4 |
| 27 | 4.6 | 6.6 | 13 | 24 | 18 | 4.1 | 1.7 | 3.5 | 1.4 | 1.2 | 1.3 | 1.5 |
| 28 | 9.0 | 2.1 | 5.4 | 3.2 | 4.1 | 2.4 | 1.7 | 2.7 | 1.4 | 1.2 | 1.2 | 1.5 |
| 29 | 30 | 1.8 | 16 | 2.8 | 3.0 | 1.7 | 1.7 | 7.7 | 1.3 | 1.2 | 1.1 | 1.5 |
| 30 | 9.0 | 19 | 6.3 | 2.6 | --- | 2.0 | 1.7 | 2.0 | 1.9 | 1.2 | 1.2 | 1.6 |
| 31 | 2.1 | --- | 3.0 | 2.4 | --- | 7.9 | --- | 4.5 | --- | 1.1 | 1.2 | --- |
| TOTAL | 200.0 | 216.2 | 321.6 | 263.2 | 171.9 | 97.9 | 78.7 | 74.0 | 46.3 | 55.9 | 97.4 | 55.9 |
| MEAN | 6.45 | 7.21 | 10.4 | 8.49 | 5.93 | 3.16 | 2.62 | 2.39 | 1.54 | 1.80 | 3.14 | 1.86 |
| MAX | 30 | 28 | 43 | 38 | 18 | 12 | 8.9 | 9.0 | 3.6 | 11 | 31 | 15 |
| MIN | 1.5 | 1.8 | 2.2 | 2.4 | 2.3 | 1.5 | 1.5 | 1.4 | 1.3 | 1.1 | 1.1 | 1.2 |
| AC-FT | 397 | 429 | 638 | 522 | 341 | 194 | 156 | 147 | 92 | 111 | 193 | 111 |

CAL YR 1975 TOTAL 1807.9 MEAN 4.95 MAX 43 MIN 1.2 AC-FT 3590
WTR YR 1976 TOTAL 1679.0 MEAN 4.59 MAX 43 MIN 1.1 AC-FT 3330

NOTE.--No gage-height record May 29 to June 28.

## 12091200 LEACH CREEK NEAR FIRCREST, WA

LOCATION.--Lat 47°13'18", long 122°30'29", in lot 24, block 14, SE¼NE¼ sec.14, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on right bank 1.0 mi (1.6 km) south of Fircrest and 2 mi (3.2 km) upstream from mouth.

DRAINAGE AREA.--4.73 mi² (12.25 km²) includes 0.68 mi² (1.76 km²) storm drainage from Flett Creek basin.

PERIOD OF RECORD.--March 1957 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder and wooden control. Altitude of gage is 190 ft (58 m), from topographic map.

REMARKS.--Records fair. Since Oct. 1, 1961, flow may be regulated at dam above station for flood control. Storage is not retained and observed annual runoff closely represents natural runoff of basin. Drainage into upper end of basin influenced by urbanizing of area. No know diversion above station.

AVERAGE DISCHARGE.--19 years, 4.09 ft³/s (0.116 m³/s), 2,960 acre-ft/yr (3.65 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 198 ft³/s (5.61 m³/s) Feb. 28, 1972, gage height, 3.51 ft (1.070 m), from rating curve extended above 60 ft³/s (1.70 m³/s); minimum, 0.1 ft³/s (0.003 m³/s) Sept. 22, 1965, gage height, 1.02 ft (0.311 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43 ft³/s (1.22 m³/s) Dec. 3, gage height, 1.87 ft (0.570 m); minimum daily, 1.5 ft³/s (0.042 m³/s) several days in July, Aug., Sept.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.0 | 2.6 | 12 | 2.6 | 2.5 | 3.0 | 2.0 | 2.9 | 2.0 | 2.0 | 1.6 | 1.6 |
| 2 | 2.0 | 7.7 | 30 | 2.4 | 2.5 | 2.5 | 2.0 | 6.1 | 1.7 | 1.7 | 1.6 | 1.6 |
| 3 | 7.3 | 4.8 | 42 | 5.3 | 3.4 | 2.4 | 1.8 | 2.0 | 1.7 | 2.5 | 1.6 | 1.6 |
| 4 | 6.0 | 2.6 | 32 | 16 | 2.6 | 2.3 | 1.8 | 2.3 | 1.6 | 3.2 | 1.6 | 1.5 |
| 5 | 19 | 2.8 | 5.0 | 10 | 2.5 | 2.2 | 2.0 | 2.0 | 1.6 | 1.7 | 1.6 | 1.8 |
| 6 | 8.6 | 6.0 | 4.0 | 4.0 | 2.5 | 2.2 | 2.3 | 2.0 | 1.6 | 1.6 | 1.6 | 1.6 |
| 7 | 4.0 | 17 | 19 | 11 | 2.5 | 2.5 | 2.0 | 1.8 | 1.6 | 3.9 | 3.9 | 1.5 |
| 8 | 3.4 | 16 | 17 | 9.0 | 3.0 | 2.2 | 3.2 | 1.8 | 1.6 | 8.1 | 2.3 | 1.6 |
| 9 | 12 | 3.0 | 5.0 | 4.6 | 2.6 | 2.2 | 2.1 | 1.8 | 1.6 | 1.8 | 1.7 | 1.6 |
| 10 | 5.3 | 2.6 | 5.3 | 14 | 2.5 | 4.0 | 2.0 | 3.4 | 1.6 | 1.7 | 1.6 | 1.6 |
| 11 | 2.6 | 2.6 | 2.9 | 13 | 10 | 2.3 | 8.1 | 2.1 | 1.6 | 1.6 | 1.6 | 1.5 |
| 12 | 2.4 | 2.5 | 3.1 | 7.6 | 4.5 | 2.4 | 2.0 | 1.8 | 1.6 | 1.6 | 1.5 | 1.5 |
| 13 | 2.4 | 15 | 6.8 | 4.6 | 7.0 | 2.6 | 2.7 | 1.8 | 1.6 | 1.6 | 1.8 | 1.5 |
| 14 | 7.7 | 28 | 3.4 | 33 | 10 | 4.5 | 4.9 | 1.8 | 1.6 | 1.7 | 7.8 | 13 |
| 15 | 5.0 | 20 | 3.7 | 37 | 5.0 | 2.3 | 2.5 | 1.7 | 3.4 | 1.7 | 30 | 1.7 |
| 16 | 7.2 | 11 | 2.6 | 12 | 16 | 2.8 | 1.8 | 1.7 | 1.8 | 1.7 | 6.7 | 1.6 |
| 17 | 14 | 6.0 | 2.4 | 6.0 | 13 | 3.2 | 1.8 | 1.7 | 1.6 | 1.7 | 1.7 | 1.6 |
| 18 | 5.7 | 2.9 | 2.4 | 4.0 | 14 | 5.2 | 2.1 | 1.8 | 1.6 | 1.6 | 1.6 | 1.5 |
| 19 | 11 | 2.7 | 2.2 | 3.5 | 5.0 | 2.0 | 3.9 | 1.8 | 1.6 | 1.6 | 3.6 | 1.5 |
| 20 | 3.1 | 2.6 | 2.2 | 3.2 | 3.0 | 2.3 | 4.8 | 1.7 | 1.6 | 2.1 | 2.1 | 1.5 |
| 21 | 10 | 2.5 | 3.1 | 2.9 | 2.6 | 1.8 | 1.8 | 1.7 | 1.6 | 1.6 | 1.6 | 1.6 |
| 22 | 2.9 | 8.0 | 7.7 | 6.4 | 2.5 | 14 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 2.1 |
| 23 | 2.4 | 16 | 10 | 3.2 | 3.5 | 3.9 | 3.6 | 1.7 | 1.6 | 1.6 | 2.1 | 1.7 |
| 24 | 2.6 | 3.0 | 6.8 | 2.7 | 10 | 10 | 7.8 | 3.4 | 1.6 | 1.6 | 2.1 | 1.6 |
| 25 | 12 | 2.9 | 15 | 2.6 | 12 | 2.3 | 2.0 | 1.8 | 1.6 | 1.5 | 2.9 | 1.5 |
| 26 | 6.4 | 21 | 33 | 7.0 | 8.0 | 6.4 | 1.8 | 2.3 | 1.6 | 1.6 | 1.6 | 1.5 |
| 27 | 6.4 | 7.0 | 14 | 24 | 15 | 4.7 | 1.8 | 3.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 28 | 11 | 2.8 | 6.4 | 3.5 | 5.0 | 2.7 | 1.8 | 2.3 | 1.6 | 1.6 | 1.6 | 1.6 |
| 29 | 29 | 2.5 | 16 | 2.9 | 4.0 | 2.0 | 1.8 | 5.8 | 1.6 | 1.6 | 1.5 | 1.6 |
| 30 | 11 | 19 | 7.2 | 2.6 | --- | 2.3 | 1.8 | 2.0 | 2.1 | 1.6 | 1.5 | 1.6 |
| 31 | 3.1 | --- | 3.1 | 2.5 | --- | 7.4 | --- | 4.7 | --- | 1.6 | 1.6 | --- |
| TOTAL | 227.5 | 242.3 | 325.3 | 263.1 | 176.7 | 112.6 | 81.8 | 75.0 | 51.1 | 62.6 | 97.1 | 59.3 |
| MEAN | 7.34 | 8.08 | 10.5 | 8.49 | 6.09 | 3.63 | 2.73 | 2.42 | 1.70 | 2.02 | 3.13 | 1.98 |
| MAX | 29 | 28 | 42 | 37 | 16 | 14 | 8.1 | 6.1 | 3.4 | 8.1 | 30 | 13 |
| MIN | 2.0 | 2.5 | 2.2 | 2.4 | 2.5 | 1.8 | 1.8 | 1.7 | 1.6 | 1.5 | 1.5 | 1.5 |
| CFSM | 1.55 | 1.71 | 2.22 | 1.79 | 1.29 | .77 | .58 | .51 | .36 | .43 | .66 | .42 |
| IN. | 1.79 | 1.91 | 2.56 | 2.07 | 1.39 | .89 | .64 | .59 | .40 | .49 | .76 | .47 |
| AC-FT | 451 | 481 | 645 | 522 | 350 | 223 | 162 | 149 | 101 | 124 | 193 | 118 |

CAL YR 1975 TOTAL 1977.0 MEAN 5.42 MAX 42 MIN 1.2 CFSM 1.15 IN 15.55 AC-FT 3920
WTR YR 1976 TOTAL 1774.4 MEAN 4.85 MAX 42 MIN 1.5 CFSM 1.03 IN 13.95 AC-FT 3520

NOTE.--No gage-height record Nov. 3 to Dec. 9, Jan. 17 to Mar. 16.

## 12091300 LEACH CREEK NEAR STEILACOOM, WA

LOCATION.--Lat 47°11'54", long 122°31'17", in NW¼NW¼ sec.26, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on left bank 0.3 mi (0.5 km) upstream from mouth and 4.1 mi (6.6 km) northeast of Steilacoom.

DRAINAGE AREA.--6.56 mi$^2$ (16.99 km$^2$), includes 0.68 mi$^2$ (1.76 km$^2$), storm drainage from Flett Creek basin. Area used prior to July 1967, 5.88 mi$^2$ (15.23 km$^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1957 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 140 ft (43 m), from topographic map. Prior to June 27, 1973, water-stage recorder at site 150 ft (46 m) upstream at different datum. Supplementary water-stage recorder at site 50 ft (15 m) downstream at different datum used Feb. 4, 1963, to Feb. 27, 1964. June 27, 1973 to Mar. 14, 1975, nonrecording gage at site 350 ft (107 m) upstream at different datum.

REMARKS.--Records good. Drainage into upper end of basin influenced by urbanizing of area. Some pumping for community use above gage. Flow can be regulated by manually operated gate in flood control dam. Storage is not retained and observed annual runoff closely represents natural runoff of basin.

AVERAGE DISCHARGE.--19 years, 9.87 ft$^3$/s (0.280 m$^3$/s), 7,150 acre-ft/yr (8.82 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 238 ft$^3$/s (6.74 m$^3$/s) Mar. 5, 1972, gage height, 6.88 ft (2.097 m), from high-water mark in well, from rating curve extended above 60 ft$^3$/s (1.70 m$^3$/s), site and datum then in use; maximum gage height, 10.91 ft (3.325 m) Feb. 28, 1972, backwater from partially plugged culvert, site and datum then in use; minimum discharge, 2.0 ft$^3$/s (0.057 m$^3$/s) July 3, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 97 ft$^3$/s (2.75 m$^3$/s) Dec. 2, gage height, 1.93 ft (0.588 m); minimum, 4.8 ft$^3$/s (0.14 m$^3$/s) July 25, 26, Aug. 4, gage height, 1.20 ft (0.366 m); minimum gage height, 1.19 ft (0.363 m) July 14, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.6 | 6.5 | 20 | 6.5 | 6.5 | 8.1 | 7.0 | 7.7 | 7.4 | 6.5 | 5.1 | 5.6 |
| 2 | 6.0 | 9.2 | 41 | 6.5 | 6.5 | 6.8 | 6.6 | 19 | 6.2 | 6.2 | 5.2 | 5.6 |
| 3 | 14 | 9.2 | 65 | 9.2 | 7.2 | 6.5 | 6.5 | 7.7 | 6.2 | 7.1 | 5.3 | 5.6 |
| 4 | 12 | 6.5 | 53 | 27 | 6.5 | 6.3 | 6.3 | 7.7 | 6.2 | 8.0 | 5.2 | 5.5 |
| 5 | 23 | 6.5 | 9.2 | 17 | 6.2 | 6.2 | 6.2 | 7.7 | 5.9 | 6.5 | 5.3 | 5.9 |
| 6 | 16 | 9.7 | 7.6 | 8.8 | 6.2 | 6.2 | 7.1 | 7.4 | 5.9 | 6.2 | 5.3 | 6.0 |
| 7 | 7.2 | 22 | 23 | 17 | 6.5 | 6.6 | 6.5 | 7.1 | 6.2 | 8.0 | 7.6 | 5.6 |
| 8 | 6.5 | 22 | 26 | 16 | 6.8 | 6.1 | 7.8 | 7.1 | 6.2 | 21 | 8.7 | 5.6 |
| 9 | 17 | 7.6 | 11 | 9.2 | 6.5 | 6.1 | 7.0 | 7.1 | 5.9 | 7.1 | 6.0 | 5.6 |
| 10 | 8.4 | 6.5 | 9.2 | 21 | 6.5 | 8.5 | 6.3 | 9.2 | 5.9 | 6.8 | 5.7 | 5.6 |
| 11 | 5.9 | 6.5 | 7.6 | 24 | 12 | 6.3 | 15 | 8.0 | 6.2 | 6.8 | 5.6 | 5.6 |
| 12 | 5.9 | 6.5 | 7.6 | 16 | 10 | 6.2 | 6.5 | 7.4 | 6.2 | 6.8 | 5.6 | 5.6 |
| 13 | 5.6 | 11 | 11 | 9.7 | 9.7 | 7.1 | 6.8 | 7.4 | 5.9 | 6.8 | 6.1 | 5.6 |
| 14 | 7.6 | 40 | 7.6 | 65 | 17 | 8.8 | 10 | 7.4 | 5.9 | 6.5 | 13 | 25 |
| 15 | 9.2 | 23 | 7.6 | 60 | 8.8 | 6.2 | 9.3 | 6.8 | 8.4 | 5.6 | 44 | 7.0 |
| 16 | 8.8 | 17 | 6.5 | 19 | 27 | 6.8 | 6.4 | 6.5 | 7.1 | 5.9 | 21 | 6.3 |
| 17 | 16 | 11 | 6.2 | 9.7 | 18 | 8.2 | 6.4 | 6.5 | 6.2 | 5.9 | 6.3 | 6.1 |
| 18 | 9.7 | 6.8 | 6.2 | 8.0 | 27 | 12 | 6.5 | 6.5 | 6.2 | 5.3 | 5.9 | 5.9 |
| 19 | 15 | 6.5 | 5.9 | 7.6 | 9.0 | 6.8 | 8.1 | 6.5 | 6.2 | 5.3 | 8.1 | 5.9 |
| 20 | 6.2 | 6.5 | 5.9 | 6.8 | 7.7 | 7.2 | 12 | 6.5 | 6.2 | 5.9 | 8.2 | 5.9 |
| 21 | 13 | 6.2 | 7.2 | 6.8 | 7.2 | 6.3 | 6.4 | 6.5 | 6.2 | 5.3 | 5.8 | 5.9 |
| 22 | 6.2 | 9.2 | 12 | 11 | 6.9 | 22 | 6.3 | 6.5 | 6.2 | 5.3 | 5.6 | 6.6 |
| 23 | 5.6 | 24 | 17 | 7.2 | 7.8 | 9.5 | 9.1 | 6.5 | 6.2 | 5.3 | 6.1 | 7.0 |
| 24 | 5.9 | 8.4 | 11 | 6.8 | 23 | 20 | 16 | 8.0 | 6.5 | 5.0 | 7.6 | 6.1 |
| 25 | 15 | 7.6 | 27 | 6.5 | 21 | 7.6 | 8.0 | 7.1 | 6.5 | 4.9 | 8.6 | 6.0 |
| 26 | 8.4 | 27 | 53 | 9.2 | 17 | 13 | 7.7 | 7.4 | 6.2 | 4.9 | 5.9 | 5.9 |
| 27 | 10 | 14 | 22 | 37 | 28 | 11 | 7.7 | 8.8 | 5.9 | 5.0 | 5.9 | 5.9 |
| 28 | 12 | 6.5 | 11 | 8.0 | 13 | 8.9 | 7.4 | 6.8 | 5.9 | 5.1 | 5.7 | 5.9 |
| 29 | 38 | 6.2 | 23 | 7.2 | 9.1 | 6.8 | 7.4 | 13 | 5.9 | 5.1 | 5.6 | 5.9 |
| 30 | 18 | 24 | 11 | 6.8 | --- | 6.9 | 7.4 | 8.4 | 6.5 | 5.2 | 5.6 | 5.9 |
| 31 | 7.2 | --- | 7.6 | 6.5 | --- | 16 | --- | 11 | --- | 5.0 | 5.6 | --- |
| TOTAL | 344.9 | 373.6 | 538.9 | 477.0 | 344.6 | 271.0 | 237.7 | 247.2 | 188.5 | 200.3 | 251.2 | 196.6 |
| MEAN | 11.1 | 12.5 | 17.4 | 15.4 | 11.9 | 8.74 | 7.92 | 7.97 | 6.28 | 6.46 | 8.10 | 6.55 |
| MAX | 38 | 40 | 65 | 65 | 28 | 22 | 16 | 19 | 8.4 | 21 | 44 | 25 |
| MIN | 5.6 | 6.2 | 5.9 | 6.5 | 6.2 | 6.1 | 6.2 | 6.5 | 5.9 | 4.9 | 5.1 | 5.5 |
| AC-FT | 684 | 741 | 1070 | 946 | 684 | 538 | 471 | 490 | 374 | 397 | 498 | 390 |

CAL YR 1975 TOTAL 4030.6 MEAN 11.0 MAX 65 MIN 4.8 AC-FT 7990
WTR YR 1976 TOTAL 3671.5 MEAN 10.0 MAX 65 MIN 4.9 AC-FT 7280

12091300 LEACH CREEK NEAR STEILACOOM, WA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963-65, October 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 15... | 1045 | 6.8 | 210 | 7.7 | 10.8 | 83 | 6 |
| 21... | 1205 | 23 | 120 | 7.2 | 10.2 | 108 | 11 |
| NOV | | | | | | | |
| 04... | 0920 | 6.5 | 260 | 7.8 | 10.2 | 54 | 3 |
| 18... | 1055 | 6.8 | 250 | 7.7 | 6.8 | 63 | 3 |
| DEC | | | | | | | |
| 02... | 0935 | 43 | 100 | 7.2 | 9.8 | 138 | 23 |
| 16... | 0930 | 6.5 | 220 | 6.8 | 7.0 | 67 | 3 |
| JAN | | | | | | | |
| 13... | 1030 | 8.4 | 210 | 7.6 | 6.6 | 63 | 3 |
| 27... | 1005 | 46 | 130 | 7.1 | 7.8 | 100 | 10 |
| FEB | | | | | | | |
| 03... | 1005 | 7.2 | 250 | 7.7 | 7.3 | 42 | 6 |
| 18... | 1005 | 36 | 120 | 7.0 | 5.5 | 92 | 16 |
| MAR | | | | | | | |
| 02... | 1000 | 6.5 | 230 | 7.2 | 6.0 | 50 | 5 |
| 17... | 0945 | 7.2 | 260 | 7.7 | 9.5 | 25 | 4 |
| APR | | | | | | | |
| 06... | 1000 | 6.8 | 218 | 7.5 | 10.2 | 38 | 4 |
| 20... | 0950 | 8.4 | 196 | 7.4 | 9.7 | 65 | 8 |
| MAY | | | | | | | |
| 04... | 0955 | 7.4 | 260 | 7.4 | 10.5 | 29 | 6 |
| 18... | 0950 | 6.5 | 271 | 7.7 | 10.2 | 13 | 4 |
| JUN | | | | | | | |
| 02... | 1025 | 6.2 | 263 | 7.4 | 10.5 | 23 | 2 |
| 15... | 1010 | 6.2 | 260 | 8.0 | 11.5 | 17 | 2 |
| JUL | | | | | | | |
| 07... | 0950 | 6.2 | 270 | 7.8 | 12.7 | 29 | 2 |
| 20... | 1005 | 7.2 | 300 | 7.8 | 12.8 | 38 | 2 |
| AUG | | | | | | | |
| 03... | 1000 | 5.3 | 269 | 7.8 | 12.3 | 13 | 1 |
| 17... | 0933 | 6.5 | 255 | 7.6 | 11.4 | 42 | 1 |
| SEP | | | | | | | |
| 08... | 0940 | 5.6 | 275 | 7.8 | 10.4 | 13 | 1 |
| 28... | 0950 | 5.9 | 282 | 7.7 | 12.0 | -- | 1 |

| DATE | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 15... | 10.4 | B4000 | B640 | 1.1 | .14 | .08 | .06 |
| 21... | 10.2 | 20000 | 1600 | .56 | .11 | .09 | .02 |
| NOV | | | | | | | |
| 04... | 10.5 | 5200 | B80 | 1.1 | .08 | .06 | .03 |
| 18... | 11.4 | 10000 | 280 | 1.4 | .08 | .06 | .01 |
| DEC | | | | | | | |
| 02... | 9.9 | 14000 | B750 | .38 | .12 | .13 | .01 |
| 16... | 11.4 | 9000 | 240 | 1.2 | .07 | .05 | .02 |
| JAN | | | | | | | |
| 13... | 11.5 | 11000 | 170 | 1.3 | .09 | .05 | .02 |
| 27... | 11.2 | 6000 | 330 | 1.2 | .30 | .25 | .14 |
| FEB | | | | | | | |
| 03... | 11.6 | B1100 | B75 | 1.3 | .13 | .06 | .04 |
| 18... | 11.8 | 6000 | B150 | .56 | .11 | .08 | .03 |
| MAR | | | | | | | |
| 02... | 12.0 | B1900 | 68 | 1.4 | .06 | .04 | .01 |
| 17... | 11.2 | 4400 | 280 | 1.4 | .04 | .05 | .03 |
| APR | | | | | | | |
| 06... | 11.2 | B1800 | 250 | 1.4 | .09 | .05 | .01 |
| 20... | 11.1 | 4100 | 340 | 1.1 | .16 | .05 | .03 |
| MAY | | | | | | | |
| 04... | 11.0 | B2600 | 130 | 1.5 | .11 | .04 | .02 |
| 18... | 11.9 | B16000 | 64 | 1.6 | .07 | .05 | .04 |
| JUN | | | | | | | |
| 02... | 11.5 | 3800 | 110 | 1.4 | .08 | .07 | .04 |
| 15... | 11.0 | B960 | 94 | 1.4 | .11 | .05 | .04 |
| JUL | | | | | | | |
| 07... | 10.6 | 1000 | 72 | 1.5 | .07 | .06 | .04 |
| 20... | 10.7 | >4000 | 380 | 1.3 | .11 | .08 | .05 |
| AUG | | | | | | | |
| 03... | 10.3 | B1000 | 140 | .63 | .04 | .06 | .03 |
| 17... | 10.3 | -- | B130 | 1.3 | .05 | .06 | .03 |
| SEP | | | | | | | |
| 08... | 10.9 | 2000 | 300 | 1.2 | .04 | .05 | .02 |
| 28... | 10.1 | 2400 | 180 | 1.3 | .05 | .05 | .03 |

## 12091600 CHAMBERS CREEK NEAR STEILACOOM, WA

LOCATION.--Lat 47°11'32", long 122°34'20", in SE¼NE¼ sec.29, T.20 N., R.2 E., Pierce county, Hydrologic Unit 17110019, at road crossing at mouth, 1.8 mi (2.9 km) northeast of Steilacoom.

DRAINAGE AREA.--108 mi² (280 km²).

PERIOD OF RECORD.--Water years 1958 (partial-record station), 1963-70, 1972-73, October 1975 to September 1976 (discontinued).

REMARKS.--Prior to October 1972 published as 12091500, "below Leach Creek near Steilacoom."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 15... | 1030 | 48 | 150 | 7.5 | 12.1 | 42 | 6 | 9.4 | B13000 |
| 21... | 1150 | 72 | 160 | 7.3 | 11.2 | 38 | 4 | 9.7 | 56000 |
| NOV | | | | | | | | | |
| 04... | 0900 | 68 | 150 | 7.5 | 11.3 | 42 | 4 | 9.3 | B2000 |
| 18... | 1040 | 105 | 140 | 7.6 | 6.8 | 42 | 5 | 11.4 | B800 |
| DEC | | | | | | | | | |
| 02... | 0920 | 185 | 130 | 7.5 | 9.4 | 50 | 8 | 10.6 | 4400 |
| 16... | 0915 | 205 | 130 | 6.6 | 6.5 | 38 | 7 | 11.7 | 1600 |
| JAN | | | | | | | | | |
| 13... | 1010 | 380 | 130 | 7.6 | 6.3 | 33 | 5 | 11.6 | 1400 |
| 27... | 0955 | 315 | 114 | 7.2 | 8.4 | 21 | 9 | 11.5 | B3000 |
| FEB | | | | | | | | | |
| 03... | 0955 | 202 | 130 | 7.5 | 7.2 | 29 | 7 | 11.5 | B360 |
| 18... | 0950 | 242 | 118 | 7.4 | 6.6 | 41 | 15 | 11.8 | B1800 |
| MAR | | | | | | | | | |
| 02... | 0945 | 222 | 130 | 7.3 | 6.1 | 33 | 8 | 12.0 | 440 |
| 17... | 0930 | 171 | 140 | 7.5 | 9.7 | 17 | 6 | 10.8 | B750 |
| APR | | | | | | | | | |
| 06... | 0930 | 153 | 138 | 6.9 | 11.3 | 21 | 6 | 10.8 | B800 |
| 20... | 0935 | 153 | 135 | 7.3 | 10.7 | 29 | 5 | 10.8 | 680 |
| MAY | | | | | | | | | |
| 04... | 0940 | 130 | 137 | 7.2 | 12.8 | 25 | 6 | 9.7 | B650 |
| 18... | 0935 | 93 | 143 | 7.5 | 13.5 | 17 | 4 | 10.5 | B800 |
| JUN | | | | | | | | | |
| 02... | 0950 | 84 | 150 | 7.3 | 12.6 | 18 | 5 | 10.3 | 1000 |
| 15... | 0950 | 67 | 160 | 8.0 | 14.3 | 17 | 3 | 9.4 | >4000 |
| JUL | | | | | | | | | |
| 07... | 0935 | 58 | 158 | 7.5 | 16.5 | 25 | 2 | 8.4 | 840 |
| 20... | 0950 | 51 | 162 | 7.6 | 15.9 | 21 | 2 | 9.0 | B950 |
| AUG | | | | | | | | | |
| 03... | 0945 | 37 | 167 | 7.3 | 15.5 | 13 | 1 | 8.4 | B1200 |
| 17... | 0920 | 55 | 158 | 7.5 | 14.0 | 25 | 2 | 8.5 | B1600 |
| SEP | | | | | | | | | |
| 08... | 0920 | 42 | 170 | 7.6 | 13.1 | 13 | 1 | 8.9 | 2300 |
| 28... | 0925 | 44 | 170 | 7.5 | 14.7 | -- | 2 | 8.7 | B2000 |

| DATE | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL ORGANIC NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 15... | B360 | 1.1 | .01 | .16 | .40 | .56 | .08 | .04 |
| 21... | B40 | 1.1 | .01 | .09 | .37 | .46 | .07 | .02 |
| NOV | | | | | | | | |
| 04... | B10 | 1.1 | .01 | .09 | .32 | .41 | .06 | .02 |
| 18... | 120 | 1.1 | .01 | .08 | .41 | .49 | .08 | .01 |
| DEC | | | | | | | | |
| 02... | 92 | 1.0 | .01 | .10 | .41 | .51 | .10 | .01 |
| 16... | B16 | 1.3 | .01 | .06 | .39 | .45 | .06 | .01 |
| JAN | | | | | | | | |
| 13... | B12 | 1.3 | .01 | .12 | .38 | .50 | .07 | .03 |
| 27... | B170 | 1.2 | .01 | .11 | .44 | .55 | .07 | .01 |
| FEB | | | | | | | | |
| 03... | B12 | 1.4 | .01 | .14 | .40 | .54 | .06 | .02 |
| 18... | B140 | 1.1 | .01 | .14 | .61 | .75 | .08 | .02 |
| MAR | | | | | | | | |
| 02... | B16 | 1.2 | .01 | .11 | .37 | .48 | .05 | .00 |
| 17... | B8 | 1.2 | .01 | .09 | .40 | .49 | .06 | .00 |
| APR | | | | | | | | |
| 06... | 50 | 1.1 | .01 | .10 | .37 | .47 | .06 | .00 |
| 20... | 58 | .95 | .01 | .16 | .46 | .62 | .06 | .00 |
| MAY | | | | | | | | |
| 04... | 42 | 1.0 | .01 | .14 | .40 | .54 | .05 | .01 |
| 18... | B16 | 1.1 | .01 | .12 | .39 | .51 | .05 | .01 |
| JUN | | | | | | | | |
| 02... | B16 | 1.1 | .01 | .12 | .42 | .54 | .05 | .01 |
| 15... | B260 | 1.3 | .01 | .12 | .37 | .49 | .06 | .02 |
| JUL | | | | | | | | |
| 07... | B20 | 1.2 | .01 | .12 | .37 | .49 | .06 | .03 |
| 20... | 44 | 1.4 | .01 | .15 | .29 | .44 | .06 | .04 |
| AUG | | | | | | | | |
| 03... | 50 | .71 | .01 | .11 | .17 | .28 | .06 | .03 |
| 17... | 86 | 1.2 | .01 | .17 | .73 | .90 | .08 | .02 |
| SEP | | | | | | | | |
| 08... | 60 | 1.3 | .01 | .10 | .17 | .27 | .06 | .02 |
| 28... | 94 | 1.3 | .01 | .06 | .22 | .28 | .06 | .03 |

B Results based upon colony counts outside the ideal range.

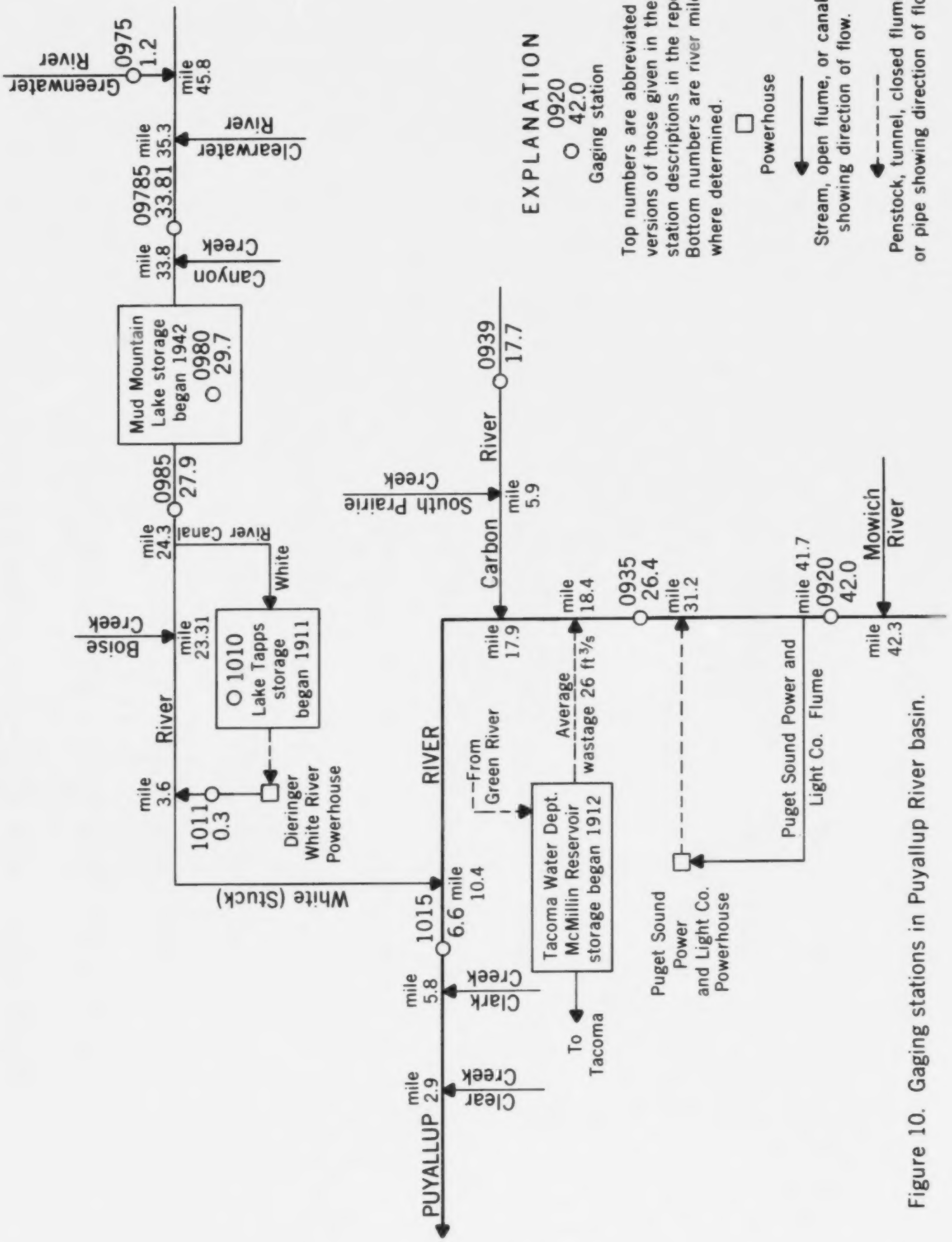
PUYALLUP RIVER
White (Stuck) River
Carbon River
Greenwater River
0975
1.2
mile 45.8
Clearwater River
mile 35.3
09785
33.81
Canyon Creek
mile 33.8
Mud Mountain Lake storage began 1942
0980
29.7
0985
27.9
White River Canal
mile 24.3
Boise Creek
mile 23.31
1010
Lake Tapps storage began 1911
Dieringer White River Powerhouse
1011
0.3
mile 3.6
1015
6.6
mile 10.4
Clark Creek
mile 5.8
Clear Creek
mile 2.9
From Green River
Tacoma Water Dept. McMillin Reservoir storage began 1912
To Tacoma
Average wastage 26 ft³/s
mile 17.9
mile 18.4
South Prairie Creek
mile 5.9
0939
17.7
0935
26.4
mile 31.2
Puget Sound Power and Light Co. Flume
Puget Sound Power and Light Co. Powerhouse
mile 41.7
0920
42.0
mile 42.3
Mowich River
EXPLANATION
0920
42.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 10. Gaging stations in Puyallup River basin.

## 12092000 PUYALLUP RIVER NEAR ELECTRON, WA

LOCATION.--Lat 46°54'14", long 122°02'02", in SE¼NW¼ sec.3, T.16 N., R.6 E., Pierce County, Hydrologic Unit 17110014, on left bank 1,000 ft (305 m) upstream from Puget Sound Power & Light Co.'s flume headworks, 0.3 mi (0.5 km) downstream from Mowich River, 9.8 mi (15.8 km) southeast of Electron, and at mile 42.0 (67.6 km).

DRAINAGE AREA.--92.8 mi$^2$ (240.4 km$^2$).

PERIOD OF RECORD.--October 1908 to September 1926, October 1926 to September 1933 (monthly discharge only, published in State of Washington Water-Supply Bulletin No. 6), October 1944 to September 1949, and October 1957 to current year.

REVISED RECORDS.--WSP 1092: 1946(M). WSP 1346: 1913, 1916-17(M), 1918-23, drainage area WSP 1566: 1945(M), 1947(P).

GAGE.--Water-stage recorder. Altitude of gage is 1,640 ft (500 m), from river-profile map. Prior to Jan. 1, 1913, nonrecording gage and Jan. 1, 1913, to Sept. 30, 1926, Oct. 1, 1944, to Sept. 30, 1949, and Oct. 1, 1957, to Nov. 22, 1959 (gage destroyed by flood), water-stage recorder, at sites within 125 ft (38 m) upstream at different datums.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--49 years, (1908-33, 1944-49, 1957-76), 533 ft$^3$/s (15.09 m$^3$/s), 78.00 in/yr (1,981 mm/yr), 386,200 acre-ft/yr (476 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft$^3$/s (306 m$^3$/s) Nov. 22, 1959, gage height, 11.9 ft (3.63 m) from flood marks, site and datum then in use, result of slope-area measurement; minimum daily discharge, 100 ft$^3$/s (2.83 m$^3$/s) Dec. 13, 14, 1972 during period of ice effect.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,300 ft$^3$/s (65.1 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 15 | 0500 | 2,320 | 65.7 | 3.61 | 1.100 | Dec. 4 | 0345 | *6,180 | 175 | *5.63 | 1.716 |
| Dec. 1 | 2215 | 5,950 | 169 | 5.54 | 1.689 | Jan. 15 | 1830 | 4,420 | 125 | 4.81 | 1.466 |

Minimum discharge, 200 ft$^3$/s (5.66 m$^3$/s) Oct. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 310 | 642 | 4280 | 653 | 490 | 262 | 290 | 776 | 425 | 672 | 564 | 604 |
| 2 | 354 | 848 | 4500 | 580 | 470 | 246 | 266 | 1100 | 405 | 610 | 604 | 510 |
| 3 | 440 | 1000 | 4780 | 536 | 450 | 239 | 266 | 835 | 370 | 634 | 622 | 485 |
| 4 | 386 | 808 | 3930 | 927 | 405 | 232 | 290 | 705 | 348 | 720 | 552 | 475 |
| 5 | 358 | 702 | 1680 | 842 | 366 | 225 | 334 | 685 | 330 | 730 | 536 | 510 |
| 6 | 322 | 624 | 1110 | 666 | 361 | 220 | 410 | 604 | 343 | 790 | 569 | 445 |
| 7 | 252 | 576 | 1400 | 659 | 352 | 215 | 415 | 622 | 380 | 935 | 842 | 361 |
| 8 | 228 | 500 | 1840 | 770 | 334 | 210 | 610 | 822 | 465 | 1400 | 744 | 326 |
| 9 | 318 | 445 | 1350 | 634 | 322 | 220 | 541 | 980 | 520 | 988 | 653 | 322 |
| 10 | 294 | 405 | 996 | 569 | 310 | 236 | 520 | 1110 | 552 | 744 | 628 | 348 |
| 11 | 242 | 366 | 803 | 586 | 330 | 232 | 622 | 965 | 530 | 679 | 622 | 370 |
| 12 | 224 | 350 | 685 | 510 | 400 | 220 | 530 | 796 | 541 | 711 | 592 | 366 |
| 13 | 214 | 354 | 610 | 465 | 366 | 215 | 470 | 877 | 495 | 634 | 574 | 318 |
| 14 | 228 | 888 | 536 | 996 | 339 | 210 | 425 | 815 | 455 | 598 | 510 | 395 |
| 15 | 390 | 1510 | 542 | 3190 | 322 | 210 | 395 | 705 | 558 | 646 | 592 | 405 |
| 16 | 298 | 840 | 490 | 2730 | 440 | 230 | 352 | 744 | 1370 | 757 | 520 | 385 |
| 17 | 410 | 624 | 445 | 1650 | 435 | 306 | 330 | 731 | 1100 | 776 | 450 | 370 |
| 18 | 588 | 510 | 420 | 1200 | 390 | 339 | 314 | 610 | 1070 | 692 | 400 | 375 |
| 19 | 765 | 455 | 410 | 920 | 352 | 306 | 310 | 563 | 1120 | 653 | 390 | 415 |
| 20 | 570 | 415 | 390 | 750 | 322 | 286 | 440 | 510 | 957 | 679 | 515 | 445 |
| 21 | 495 | 386 | 370 | 646 | 310 | 270 | 370 | 495 | 789 | 616 | 490 | 465 |
| 22 | 440 | 378 | 400 | 640 | 310 | 330 | 343 | 520 | 692 | 574 | 495 | 455 |
| 23 | 382 | 564 | 616 | 598 | 339 | 310 | 326 | 525 | 610 | 692 | 515 | 405 |
| 24 | 346 | 1020 | 950 | 530 | 339 | 361 | 390 | 541 | 598 | 731 | 574 | 385 |
| 25 | 465 | 872 | 796 | 490 | 318 | 326 | 370 | 569 | 552 | 692 | 711 | 385 |
| 26 | 480 | 1080 | 1670 | 465 | 302 | 298 | 334 | 574 | 510 | 634 | 547 | 375 |
| 27 | 410 | 800 | 1170 | 822 | 330 | 286 | 318 | 842 | 541 | 563 | 490 | 385 |
| 28 | 386 | 612 | 905 | 692 | 306 | 278 | 322 | 711 | 659 | 552 | 525 | 440 |
| 29 | 864 | 510 | 1130 | 628 | 282 | 254 | 361 | 574 | 750 | 604 | 515 | 455 |
| 30 | 1090 | 1070 | 1010 | 552 | --- | 282 | 525 | 515 | 685 | 604 | 558 | 405 |
| 31 | 702 | --- | 796 | 510 | --- | 330 | --- | 465 | --- | 580 | 598 | --- |
| TOTAL | 13251 | 20154 | 41010 | 26406 | 10392 | 8184 | 11789 | 21886 | 18720 | 21890 | 17497 | 12385 |
| MEAN | 427 | 672 | 1323 | 852 | 358 | 264 | 393 | 706 | 624 | 706 | 564 | 413 |
| MAX | 1090 | 1510 | 4780 | 3190 | 490 | 361 | 622 | 1110 | 1370 | 1400 | 842 | 604 |
| MIN | 214 | 350 | 370 | 465 | 282 | 210 | 266 | 465 | 330 | 552 | 390 | 318 |
| CFSM | 4.60 | 7.24 | 14.3 | 9.18 | 3.86 | 2.84 | 4.23 | 7.61 | 6.72 | 7.61 | 6.08 | 4.45 |
| IN. | 5.31 | 8.08 | 16.44 | 10.59 | 4.17 | 3.28 | 4.73 | 8.77 | 7.50 | 8.77 | 7.01 | 4.96 |
| AC-FT | 26280 | 39980 | 81340 | 52380 | 20610 | 16230 | 23380 | 43410 | 37130 | 43420 | 34710 | 24570 |

CAL YR 1975 TOTAL 222799 MEAN 610 MAX 4780 MIN 185 CFSM 6.57 IN 89.31 AC-FT 441900
WTR YR 1976 TOTAL 223564 MEAN 611 MAX 4780 MIN 210 CFSM 6.58 IN 89.62 AC-FT 443400

## 12093500 PUYALLUP RIVER NEAR ORTING, WA

LOCATION.--Lat 47°02'22", long 122°12'24", in SW¼SW¼ sec.17, T.18 N., R.5 E., Pierce County, Hydrologic Unit 17110014, on right bank 600 ft (183 m) downstream from highway bridge, 4.0 mi (6.4 km) south of Orting, 8.5 mi (13.7 km) upstream from Carbon River, and at mile 26.4 (42.5 km).

DRAINAGE AREA.--172 $mi^2$ (445 $km^2$).

PERIOD OF RECORD.--September 1931 to current year.

REVISED RECORDS.--WSP 932: 1937-39. WSP 962: 1934. WSP 1246: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 352.5 ft (107.44 m) above mean sea level, unadjusted. Prior to Feb. 6, 1946, at site 600 ft (183 m) upstream at datum 8.93 ft (2.722 m) higher. Supplementary water-stage recorder 200 ft (61 m) upstream at datum 7.1 ft (2.16 m) higher than present gage datum used at times during period in 1942-46. Feb. 6, 1946, to Mar. 12, 1965, at present site at datum 5.0 ft (1.52 m) higher.

REMARKS.--Records good except those for period Mar. 12 to Apr. 22, which are fair. Up to 400 $ft^3/s$ (11.3 $m^3/s$) diverted for Electron powerplant of Puget Sound Power & Light Co., returned to river above gage. Flow regulated by Electron powerplant.

AVERAGE DISCHARGE.--45 years, 718 $ft^3/s$ (20.33 $m^3/s$) 56.69 in/yr (1,440 mm/yr), 520,200 acre-ft/yr (641 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,300 $ft^3/s$ (433 $m^3/s$) Nov. 20, 1962, gage height, 11.82 ft (3.603 m) present datum, from rating curve extended above 8,600 $ft^3/s$ (244 $m^3/s$) on basis of slope-area measurement at gage height 12.25 ft (3.734 m) present datum; minimum discharge, 25 $ft^3/s$ (0.71 $m^3/s$) Nov. 28, 1952; minimum daily, 59 $ft^3/s$ (1.67 $m^3/s$)Nov. 29, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 $ft^3/s$ (127 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 1 | 2130 | 8,360 | 237 | 9.14 | 2.786 | Jan. 15 | 1930 | 7,130 | 202 | 8.45 | 2.576 |
| Dec. 4 | 0515 | *8,850 | 251 | *9.23 | 2.813 | | | | | | |

Minimum discharge, 179 $ft^3/s$ (5.07 $m^3/s$) Oct. 14, gage height, 3.33 ft (1.015 m); minimum daily, 221 $ft^3/s$ (6.26 $m^3/s$) Oct. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 308 | 866 | 6110 | 922 | 691 | 510 | 520 | 1010 | 522 | 740 | 635 | 719 |
| 2 | 355 | 1040 | 6650 | 789 | 649 | 450 | 470 | 1450 | 516 | 656 | 628 | 570 |
| 3 | 506 | 1290 | 6800 | 705 | 614 | 410 | 470 | 1100 | 465 | 663 | 733 | 570 |
| 4 | 470 | 1070 | 6050 | 1300 | 564 | 390 | 500 | 914 | 440 | 782 | 628 | 528 |
| 5 | 385 | 938 | 2770 | 1350 | 480 | 380 | 600 | 898 | 390 | 789 | 588 | 576 |
| 6 | 440 | 858 | 1820 | 1070 | 480 | 370 | 650 | 789 | 405 | 874 | 621 | 540 |
| 7 | 288 | 874 | 2420 | 1000 | 460 | 370 | 700 | 782 | 435 | 1020 | 1080 | 420 |
| 8 | 254 | 826 | 3000 | 1260 | 450 | 355 | 900 | 994 | 534 | 1780 | 1020 | 370 |
| 9 | 330 | 742 | 2250 | 1030 | 430 | 355 | 820 | 1200 | 582 | 1280 | 803 | 340 |
| 10 | 345 | 658 | 1680 | 882 | 405 | 400 | 760 | 1430 | 628 | 906 | 747 | 370 |
| 11 | 262 | 567 | 1290 | 1030 | 420 | 380 | 900 | 1230 | 594 | 796 | 733 | 405 |
| 12 | 230 | 518 | 1050 | 890 | 552 | 360 | 810 | 962 | 614 | 842 | 677 | 410 |
| 13 | 224 | 494 | 898 | 747 | 498 | 350 | 730 | 1060 | 582 | 754 | 677 | 350 |
| 14 | 221 | 1150 | 768 | 1800 | 465 | 340 | 660 | 986 | 510 | 684 | 594 | 430 |
| 15 | 482 | 1990 | 789 | 5350 | 430 | 340 | 600 | 842 | 594 | 726 | 726 | 516 |
| 16 | 328 | 1330 | 698 | 4680 | 656 | 370 | 550 | 874 | 1580 | 858 | 684 | 460 |
| 17 | 410 | 1020 | 600 | 2850 | 726 | 450 | 510 | 874 | 1360 | 914 | 540 | 435 |
| 18 | 818 | 810 | 564 | 2140 | 768 | 530 | 480 | 726 | 1250 | 818 | 475 | 420 |
| 19 | 938 | 686 | 528 | 1590 | 656 | 480 | 480 | 663 | 1300 | 740 | 440 | 455 |
| 20 | 770 | 609 | 475 | 1260 | 570 | 450 | 650 | 594 | 1110 | 782 | 588 | 492 |
| 21 | 665 | 542 | 450 | 1050 | 522 | 450 | 580 | 528 | 898 | 726 | 570 | 522 |
| 22 | 588 | 530 | 522 | 1020 | 504 | 540 | 540 | 576 | 761 | 628 | 558 | 522 |
| 23 | 488 | 826 | 761 | 954 | 564 | 500 | 510 | 594 | 700 | 775 | 576 | 465 |
| 24 | 410 | 1350 | 1350 | 826 | 576 | 600 | 614 | 649 | 670 | 850 | 649 | 430 |
| 25 | 536 | 1270 | 1160 | 740 | 607 | 550 | 594 | 684 | 630 | 803 | 898 | 435 |
| 26 | 686 | 1540 | 2240 | 684 | 594 | 510 | 528 | 642 | 600 | 733 | 754 | 420 |
| 27 | 536 | 1370 | 1840 | 1230 | 656 | 480 | 492 | 978 | 620 | 635 | 594 | 415 |
| 28 | 488 | 1050 | 1310 | 1080 | 684 | 460 | 486 | 818 | 720 | 600 | 635 | 470 |
| 29 | 970 | 850 | 1570 | 954 | 588 | 450 | 510 | 677 | 850 | 663 | 607 | 504 |
| 30 | 1400 | 1730 | 1550 | 826 | --- | 500 | 705 | 628 | 780 | 684 | 642 | 455 |
| 31 | 970 | --- | 1170 | 740 | --- | 600 | --- | 558 | --- | 677 | 698 | --- |
| TOTAL | 16101 | 29394 | 61133 | 42749 | 16259 | 13680 | 18319 | 26710 | 21640 | 25178 | 20798 | 14014 |
| MEAN | 519 | 980 | 1972 | 1379 | 561 | 441 | 611 | 862 | 721 | 812 | 671 | 467 |
| MAX | 1400 | 1990 | 6800 | 5350 | 768 | 600 | 900 | 1450 | 1580 | 1780 | 1080 | 719 |
| MIN | 221 | 494 | 450 | 684 | 405 | 340 | 470 | 528 | 390 | 600 | 440 | 340 |
| CFSM | 3.02 | 5.70 | 11.5 | 8.02 | 3.26 | 2.56 | 3.55 | 5.01 | 4.19 | 4.72 | 3.90 | 2.72 |
| IN. | 3.48 | 6.36 | 13.22 | 9.25 | 3.52 | 2.96 | 3.96 | 5.78 | 4.68 | 5.45 | 4.50 | 3.03 |
| AC-FT | 31940 | 58300 | 121300 | 84790 | 32250 | 27130 | 36340 | 52980 | 42920 | 49940 | 41250 | 27800 |

CAL YR 1975 TOTAL 316343 MEAN 867 MAX 6800 MIN 221 CFSM 5.04 IN 68.42 AC-FT 627500
WTR YR 1976 TOTAL 305975 MEAN 836 MAX 6800 MIN 221 CFSM 4.86 IN 66.18 AC-FT 606900

## 12093510 PUYALLUP RIVER AT ORTING, WA

LOCATION.--Lat 47°05'21", long 122°12'43", in SE¼NE¼ sec. 31, T.19 N., R.5 E., Pierce County, Hydrologic Unit 17110014, on Calistoga Street bridge, 0.7 mi (1.1 km) south of Orting, upstream from Carbon River.

PERIOD OF RECORD.--October 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 14... | 1425 | 212 | 78 | 7.4 | 10.9 | 29 | 10 |
| 20... | 1600 | 735 | 55 | 7.3 | 8.6 | 63 | 26 |
| NOV | | | | | | | |
| 03... | 1400 | 1260 | 45 | 7.3 | 10.2 | 58 | 17 |
| 17... | 1455 | 1010 | 60 | 7.4 | 4.9 | 54 | 9 |
| DEC | | | | | | | |
| 01... | 1510 | 7430 | 35 | 7.2 | 5.8 | 238 | 600 |
| 15... | 1440 | 803 | 49 | 7.0 | 4.5 | 42 | 3 |
| JAN | | | | | | | |
| 12... | 1345 | 882 | 53 | 7.3 | 3.9 | 46 | 4 |
| 26... | 1325 | 677 | 54 | 7.1 | 4.4 | 58 | 10 |
| FEB | | | | | | | |
| 02... | 1350 | 635 | 53 | 7.4 | 4.0 | 29 | 5 |
| 17... | 1430 | 677 | 61 | 7.3 | 4.8 | 50 | 5 |
| MAR | | | | | | | |
| 01... | 1310 | 516 | 61 | 7.1 | 4.4 | 42 | 3 |
| 16... | 1350 | *370 | 64 | 7.5 | 8.1 | 25 | 4 |
| APR | | | | | | | |
| 05... | 1400 | *600 | 61 | 7.5 | 9.8 | 21 | 3 |
| 19... | 1405 | *480 | 59 | 7.9 | 10.0 | 25 | 4 |
| MAY | | | | | | | |
| 03... | 1415 | 1080 | 48 | 7.4 | 9.7 | 25 | 8 |
| 17... | 1415 | 866 | 45 | 7.8 | 10.6 | 17 | 5 |
| JUN | | | | | | | |
| 01... | 1410 | 516 | 56 | 7.4 | 9.4 | 18 | 4 |
| 14... | 1410 | 510 | 55 | 7.7 | 14.1 | 25 | 5 |
| JUL | | | | | | | |
| 06... | 1430 | 858 | 41 | 7.4 | 15.0 | 55 | 40 |
| 19... | 1500 | 747 | 40 | 7.6 | 14.4 | 50 | 45 |
| AUG | | | | | | | |
| 02... | 1415 | 621 | 51 | 7.0 | 14.5 | 63 | 58 |
| 16... | 1343 | 754 | 54 | 7.3 | 11.9 | 46 | 32 |
| SEP | | | | | | | |
| 07... | 1245 | 492 | 60 | 7.5 | 11.2 | 50 | 29 |
| 27... | 1335 | 510 | 55 | 7.3 | 12.9 | -- | 90 |

*Mean daily discharge.

| DATE | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 14... | 11.5 | B100 | <20 | .03 | .07 | .04 | .01 |
| 20... | 11.9 | B400 | <100 | .16 | .10 | .08 | .01 |
| NOV | | | | | | | |
| 03... | 11.3 | B150 | <5 | .12 | .08 | .06 | .00 |
| 17... | 12.9 | B150 | B30 | .22 | .05 | .08 | .00 |
| DEC | | | | | | | |
| 01... | 11.6 | B4000 | B180 | .24 | .08 | 2.0 | .01 |
| 15... | 12.7 | 250 | B34 | .18 | .03 | .03 | .01 |
| JAN | | | | | | | |
| 12... | 13.1 | B85 | B36 | .24 | .07 | .04 | .03 |
| 26... | 13.0 | 120 | B4 | .19 | .06 | .02 | .00 |
| FEB | | | | | | | |
| 02... | 13.3 | B40 | B10 | .15 | .07 | .02 | .01 |
| 17... | 12.7 | 1000 | B540 | .23 | .15 | .05 | .02 |
| MAR | | | | | | | |
| 01... | 13.1 | B70 | B10 | .20 | .04 | .01 | .00 |
| 16... | 12.6 | B70 | <2 | .06 | .03 | .01 | .00 |
| APR | | | | | | | |
| 05... | 12.4 | 40 | <2 | .02 | .03 | .01 | .00 |
| 19... | 13.0 | B60 | <2 | .01 | .05 | .01 | .00 |
| MAY | | | | | | | |
| 03... | 12.5 | B30 | <2 | .01 | .12 | .02 | .00 |
| 17... | 12.1 | B24 | <2 | .01 | .06 | .01 | .00 |
| JUN | | | | | | | |
| 01... | 12.9 | 58 | <2 | .01 | .04 | .02 | .00 |
| 14... | 11.8 | 66 | <2 | .01 | .15 | .02 | .00 |
| JUL | | | | | | | |
| 06... | 11.2 | B100 | <10 | .01 | .20 | .11 | .01 |
| 19... | 11.7 | B100 | <2 | .00 | .16 | .10 | .01 |
| AUG | | | | | | | |
| 02... | 10.3 | -- | <20 | .01 | .29 | .16 | .01 |
| 16... | 10.1 | B300 | B17 | .06 | .15 | .11 | .00 |
| SEP | | | | | | | |
| 07... | 11.4 | <50 | B10 | .01 | .05 | .09 | .00 |
| 27... | 10.5 | B300 | <10 | .02 | .40 | .40 | .01 |

B Results based upon colony counts outside the ideal range.

## 12093900 CARBON RIVER AT FAIRFAX, WA

LOCATION.--Lat 47°00'47", long 122°00'42", in SW¼SW¼ sec.26, T.18 N., R.6 E., Pierce County, Hydrologic Unit 17110014, on left bank at Fairfax, 0.7 mi (1.1 km) downstream from Evans Creek, and at mile 17.7 (28.5 km).

DRAINAGE AREA.--76.2 mi² (197.4 km²).

PERIOD OF RECORD.--November 1910 to July 1912, October 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,330 ft (405 m), from topographic map. Nov. 23, 1910, to July 12, 1912, nonrecording gage at approximately same site at different datum.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--11 years (water years 1966-76) 445 ft³/s (12.60 m³/s), 79.31 in/yr (2,014 mm/yr), 322,400 acre-ft/yr (398 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 7,480 ft³/s (212 m³/s) Dec. 25, 1967, gage height, 6.25 ft (1.905 m); minimum, 73 ft³/s (2.07 m³/s) Nov. 4, 6, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft³/s (51.0 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 1 | 1800 | *7,460 | 211 | *6.19 | 1.887 | Dec. 26 | 1600 | 2,010 | 56.9 | 3.86 | 1.177 |
| Dec. 8 | 1200 | 1,880 | 53.2 | 3.86 | 1.177 | Jan. 15 | 2100 | 4,850 | 137 | 5.32 | 1.622 |

Minimum discharge, 115 ft³/s (3.26 m³/s) Oct. 14.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 165 | 623 | 4720 | 571 | 425 | 200 | 196 | 645 | 319 | 584 | 485 | 425 |
| 2 | 180 | 823 | 5150 | 485 | 395 | 185 | 182 | 1050 | 295 | 533 | 457 | 385 |
| 3 | 263 | 1040 | 4700 | 452 | 366 | 170 | 182 | 750 | 267 | 533 | 491 | 348 |
| 4 | 307 | 751 | 3210 | 948 | 319 | 165 | 196 | 597 | 251 | 564 | 452 | 335 |
| 5 | 277 | 571 | 1360 | 908 | 291 | 160 | 234 | 584 | 237 | 590 | 415 | 371 |
| 6 | 284 | 475 | 860 | 638 | 280 | 155 | 303 | 509 | 259 | 666 | 446 | 344 |
| 7 | 195 | 420 | 1090 | 631 | 280 | 153 | 299 | 515 | 287 | 785 | 645 | 287 |
| 8 | 162 | 367 | 1680 | 836 | 270 | 150 | 366 | 708 | 371 | 1090 | 571 | 248 |
| 9 | 155 | 319 | 1240 | 652 | 260 | 148 | 395 | 876 | 435 | 868 | 474 | 230 |
| 10 | 157 | 284 | 908 | 558 | 250 | 168 | 380 | 980 | 497 | 701 | 452 | 223 |
| 11 | 145 | 253 | 680 | 564 | 280 | 160 | 497 | 792 | 468 | 638 | 468 | 234 |
| 12 | 132 | 235 | 558 | 463 | 353 | 148 | 425 | 603 | 457 | 638 | 457 | 271 |
| 13 | 122 | 235 | 485 | 405 | 303 | 145 | 362 | 694 | 410 | 590 | 441 | 237 |
| 14 | 126 | 609 | 420 | 1040 | 280 | 145 | 323 | 666 | 357 | 571 | 395 | 279 |
| 15 | 351 | 1120 | 452 | 3130 | 270 | 140 | 303 | 564 | 430 | 610 | 463 | 299 |
| 16 | 249 | 791 | 400 | 2900 | 405 | 145 | 251 | 584 | 1250 | 694 | 446 | 283 |
| 17 | 267 | 559 | 357 | 1630 | 420 | 190 | 230 | 584 | 980 | 743 | 357 | 267 |
| 18 | 430 | 430 | 339 | 1200 | 395 | 227 | 217 | 474 | 948 | 694 | 311 | 259 |
| 19 | 815 | 371 | 327 | 828 | 327 | 211 | 214 | 425 | 980 | 624 | 307 | 283 |
| 20 | 751 | 327 | 315 | 638 | 287 | 205 | 353 | 390 | 836 | 610 | 452 | 331 |
| 21 | 529 | 295 | 299 | 527 | 270 | 187 | 299 | 362 | 701 | 539 | 441 | 327 |
| 22 | 400 | 288 | 335 | 515 | 255 | 227 | 267 | 395 | 597 | 521 | 410 | 307 |
| 23 | 331 | 460 | 491 | 485 | 270 | 217 | 248 | 395 | 497 | 558 | 375 | 275 |
| 24 | 281 | 1090 | 948 | 420 | 270 | 241 | 311 | 408 | 491 | 631 | 380 | 255 |
| 25 | 460 | 1000 | 792 | 375 | 260 | 230 | 291 | 435 | 463 | 610 | 527 | 255 |
| 26 | 602 | 1270 | 1650 | 353 | 240 | 214 | 263 | 420 | 405 | 551 | 533 | 255 |
| 27 | 425 | 1020 | 1210 | 1170 | 250 | 205 | 259 | 680 | 430 | 515 | 441 | 234 |
| 28 | 351 | 707 | 852 | 900 | 260 | 196 | 275 | 571 | 545 | 463 | 446 | 241 |
| 29 | 405 | 523 | 1210 | 680 | 240 | 179 | 303 | 468 | 631 | 515 | 420 | 241 |
| 30 | 714 | 735 | 1020 | 545 | --- | 182 | 415 | 400 | 597 | 497 | 420 | 230 |
| 31 | 589 | --- | 736 | 468 | --- | 220 | --- | 353 | --- | 474 | 435 | --- |
| TOTAL | 10619 | 17991 | 38794 | 25915 | 8771 | 5668 | 8839 | 17869 | 15691 | 19200 | 13813 | 8559 |
| MEAN | 343 | 600 | 1251 | 836 | 302 | 183 | 295 | 576 | 523 | 619 | 446 | 285 |
| MAX | 815 | 1270 | 5150 | 3130 | 425 | 241 | 497 | 1050 | 1250 | 1090 | 645 | 425 |
| MIN | 122 | 235 | 299 | 353 | 240 | 140 | 182 | 353 | 237 | 463 | 307 | 223 |
| CFSM | 4.50 | 7.87 | 16.4 | 11.0 | 3.96 | 2.40 | 3.87 | 7.56 | 6.86 | 8.12 | 5.85 | 3.74 |
| IN. | 5.18 | 8.78 | 18.94 | 12.65 | 4.28 | 2.77 | 4.32 | 8.72 | 7.66 | 9.37 | 6.74 | 4.18 |
| AC-FT | 21060 | 35690 | 76950 | 51400 | 17400 | 11240 | 17530 | 35440 | 31120 | 38080 | 27400 | 16980 |

CAL YR 1975 TOTAL 199841 MEAN 548 MAX 5150 MIN 121 CFSM 7.19 IN 97.56 AC-FT 396400
WTR YR 1976 TOTAL 191729 MEAN 524 MAX 5150 MIN 122 CFSM 6.88 IN 93.60 AC-FT 380300

## 12093900 CARBON RIVER AT FAIRFAX, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 14... | 1345 | 118 | 43 | 7.8 | 8.9 | 25 | 15 |
| 20... | 1515 | 683 | 28 | 7.4 | 7.5 | 58 | 38 |
| NOV | | | | | | | |
| 03... | 1315 | 1000 | 26 | 7.2 | 8.2 | 29 | 7 |
| 17... | 1420 | 541 | 38 | 7.2 | 4.2 | 25 | 4 |
| DEC | | | | | | | |
| 01... | 1405 | 6300 | 17 | 6.9 | 4.2 | 113 | 400 |
| 15... | 1355 | 446 | 32 | 6.7 | 4.2 | 25 | 4 |
| JAN | | | | | | | |
| 12... | 1300 | 458 | 37 | 7.3 | 2.8 | 17 | 4 |
| 26... | 1245 | 340 | 32 | 6.9 | 4.0 | 71 | 7 |
| FEB | | | | | | | |
| 02... | 1305 | 395 | 31 | 7.2 | 3.8 | 21 | 5 |
| 17... | 1345 | 497 | 50 | 7.3 | 4.1 | 21 | 6 |
| MAR | | | | | | | |
| 01... | 1225 | *200 | 38 | 7.3 | 3.4 | 21 | 3 |
| 16... | 1305 | 143 | 42 | 7.2 | 6.7 | 8 | 3 |
| APR | | | | | | | |
| 05... | 1310 | 224 | 40 | 6.9 | 9.5 | 8 | 2 |
| 19... | 1325 | 199 | 40 | 7.7 | 8.5 | 13 | 4 |
| MAY | | | | | | | |
| 03... | 1325 | 715 | 34 | 7.3 | 9.1 | 17 | 5 |
| 17... | 1325 | 584 | 30 | 7.7 | 8.6 | 13 | 3 |
| JUN | | | | | | | |
| 01... | 1325 | 311 | 35 | 7.8 | 7.8 | 18 | 8 |
| 14... | 1320 | 348 | 31 | 7.5 | 12.7 | 25 | 6 |
| JUL | | | | | | | |
| 06... | 1345 | 645 | 25 | 7.4 | 14.4 | 38 | 30 |
| 19... | 1400 | 571 | 24 | 7.4 | 12.7 | 67 | 88 |
| AUG | | | | | | | |
| 02... | 1330 | 430 | 31 | 7.2 | 12.2 | 75 | 74 |
| 16... | 1258 | 425 | 31 | 7.3 | 10.0 | 29 | 22 |
| SEP | | | | | | | |
| 07... | 1155 | 279 | 33 | 7.6 | 9.8 | 38 | 23 |
| 27... | 1245 | 220 | 30 | 7.3 | 10.1 | -- | 54 |

* Mean daily discharge.

| DATE | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 14... | 11.0 | B50 | <20 | .02 | .09 | .03 | .01 |
| 20... | 11.8 | B1000 | <100 | .50 | .15 | .12 | .01 |
| NOV | | | | | | | |
| 03... | 11.3 | <100 | B2 | .06 | .04 | .03 | .00 |
| 17... | 12.6 | B60 | B4 | .11 | .02 | .01 | .00 |
| DEC | | | | | | | |
| 01... | 11.4 | B4000 | B40 | .11 | .07 | 1.9 | .00 |
| 15... | 12.4 | B40 | B2 | .14 | .02 | .01 | .00 |
| JAN | | | | | | | |
| 12... | 13.0 | <10 | <2 | .15 | .05 | .04 | .03 |
| 26... | 12.9 | 48 | <2 | .10 | .08 | .01 | .00 |
| FEB | | | | | | | |
| 02... | 13.0 | B90 | B4 | .07 | .06 | .01 | .00 |
| 17... | 12.6 | B4 | B2 | .10 | .06 | .02 | .01 |
| MAR | | | | | | | |
| 01... | 13.0 | B10 | B2 | .13 | .04 | .00 | .00 |
| 16... | 12.0 | 44 | <2 | .09 | .03 | .01 | .00 |
| APR | | | | | | | |
| 05... | 11.4 | B14 | <2 | .07 | .03 | .00 | .00 |
| 19... | 11.7 | B10 | <2 | .03 | .04 | .00 | .00 |
| MAY | | | | | | | |
| 03... | 11.7 | B16 | <2 | .04 | .10 | .01 | .00 |
| 17... | 12.6 | B10 | <2 | .02 | .04 | .00 | .00 |
| JUN | | | | | | | |
| 01... | 12.3 | B26 | B2 | .02 | .08 | .01 | .00 |
| 14... | 11.7 | B22 | <2 | .02 | .05 | .01 | .00 |
| JUL | | | | | | | |
| 06... | 10.6 | B150 | <10 | .01 | .16 | .08 | .01 |
| 19... | 11.3 | B20 | <5 | .04 | .18 | .24 | .01 |
| AUG | | | | | | | |
| 02... | 10.2 | B25 | <5 | .02 | .35 | .20 | .02 |
| 16... | 11.0 | B200 | <20 | .01 | .12 | .14 | .01 |
| SEP | | | | | | | |
| 07... | 10.8 | <50 | <20 | .01 | .13 | .08 | .00 |
| 27... | 10.5 | B130 | <10 | .02 | .22 | .18 | .02 |

B Results based upon colony counts outside the ideal range.

## 12095300 SOUTH PRAIRIE CREEK NEAR CROCKER, WA

LOCATION.--Lat 47°06'34", long 122°08'43", in NE¼NE¼ sec.27, T.19 N., R.5 E., Pierce County, Hydrologic Unit 17110014, at bridge on State Highway 162, 1.1 mi (1.8 km) upstream from mouth and 1.3 mi (2.1 km) north of Crocker.

DRAINAGE AREA.--89.5 mi² (231.8 km²).

PERIOD OF RECORD.--October 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 14... | 1300 | 87 | 103 | 7.5 | 11.5 | 33 | 3 |
| 20... | 1435 | 233 | 62 | 7.3 | 9.7 | 75 | 5 |
| NOV | | | | | | | |
| 03... | 1235 | 380 | 50 | 7.2 | 9.4 | 58 | 4 |
| 17... | 1330 | 345 | 68 | 7.4 | 6.1 | 63 | 4 |
| DEC | | | | | | | |
| 01... | 1315 | 3400 | 34 | 7.1 | 6.6 | 213 | 170 |
| 15... | 1315 | 345 | 66 | 6.9 | 5.4 | 46 | 6 |
| JAN | | | | | | | |
| 12... | 1220 | 410 | 72 | 7.4 | 4.4 | 42 | 5 |
| 26... | 1215 | 258 | 75 | 7.2 | 4.1 | 38 | 5 |
| FEB | | | | | | | |
| 02... | 1230 | 255 | 74 | 7.3 | 4.5 | 29 | 3 |
| 17... | 1310 | 305 | 72 | 7.5 | 5.2 | 46 | 8 |
| MAR | | | | | | | |
| 01... | 1150 | 254 | 82 | 7.2 | 4.1 | 38 | 5 |
| 16... | 1225 | 172 | 89 | 7.6 | 7.3 | 25 | 4 |
| APR | | | | | | | |
| 05... | 1230 | 222 | 84 | 8.0 | 8.4 | 21 | 2 |
| 19... | 1245 | 175 | 80 | 7.6 | 9.8 | 25 | 3 |
| MAY | | | | | | | |
| 03... | 1240 | 330 | 61 | 7.2 | 9.8 | 33 | 4 |
| 17... | 1250 | 194 | 65 | 7.6 | 11.1 | 21 | 4 |
| JUN | | | | | | | |
| 01... | 1250 | 168 | 74 | 7.7 | 9.9 | 32 | 3 |
| 14... | 1245 | 140 | 75 | 8.3 | 13.3 | 29 | 2 |
| JUL | | | | | | | |
| 06... | 1305 | 140 | 70 | 7.7 | 16.4 | 29 | 2 |
| 19... | 1315 | 103 | 79 | 7.7 | 16.6 | 21 | 2 |
| AUG | | | | | | | |
| 02... | 1245 | 69 | 97 | 7.2 | 17.0 | 17 | 1 |
| 16... | 1200 | 222 | 81 | 7.4 | 12.8 | 71 | 2 |
| SEP | | | | | | | |
| 07... | 1110 | 143 | 80 | 7.6 | 12.2 | 42 | 1 |
| 27... | 1200 | 83 | 100 | 7.4 | 13.8 | -- | 2 |

| DATE | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 14... | 11.4 | B700 | B50 | 1.5 | 1.0 | .03 | .01 |
| 20... | 11.3 | B1600 | 42 | .30 | .05 | .02 | .00 |
| NOV | | | | | | | |
| 03... | 11.2 | B300 | B16 | .34 | .05 | .02 | .00 |
| 17... | 12.3 | B950 | 48 | .55 | .04 | .02 | .00 |
| DEC | | | | | | | |
| 01... | 11.3 | 12000 | B220 | .44 | .07 | .54 | .01 |
| 15... | 12.4 | B400 | 74 | .43 | .04 | .02 | .00 |
| JAN | | | | | | | |
| 12... | 12.7 | 590 | 42 | .46 | .09 | .05 | .04 |
| 26... | 12.6 | 500 | B18 | .40 | .04 | .01 | .00 |
| FEB | | | | | | | |
| 02... | 12.9 | 380 | B20 | .36 | .07 | .04 | .02 |
| 17... | 12.3 | >1600 | B270 | .41 | .09 | .04 | .01 |
| MAR | | | | | | | |
| 01... | 13.3 | B280 | B10 | .46 | .03 | .01 | .00 |
| 16... | 12.8 | 100 | B24 | .32 | .03 | .02 | .00 |
| APR | | | | | | | |
| 05... | 12.2 | 360 | B4 | .26 | .04 | .01 | .01 |
| 19... | 12.2 | B340 | B18 | .21 | .07 | .01 | .01 |
| MAY | | | | | | | |
| 03... | 12.0 | 290 | B32 | .18 | .18 | .02 | .00 |
| 17... | 10.6 | B220 | <2 | .14 | .05 | .01 | .01 |
| JUN | | | | | | | |
| 01... | 12.8 | 220 | B8 | .12 | .10 | .02 | .00 |
| 14... | 12.8 | 230 | B6 | .09 | .08 | .02 | .00 |
| JUL | | | | | | | |
| 06... | 11.0 | >420 | 42 | .10 | .12 | .02 | .01 |
| 19... | 11.2 | 230 | B15 | .11 | .06 | .02 | .00 |
| AUG | | | | | | | |
| 02... | 10.4 | >160 | 120 | .05 | .04 | .02 | .00 |
| 16... | 9.6 | B1200 | 200 | .27 | .05 | .02 | .01 |
| SEP | | | | | | | |
| 07... | 11.2 | 540 | B150 | .12 | .05 | .02 | .00 |
| 27... | 10.1 | B750 | 100 | .11 | .02 | .01 | .00 |

B Results based upon colony counts outside the ideal range.

## 12095900 PUYALLUP RIVER AT MCMILLIN, WA

LOCATION.--Lat 47°08'25", long 122°13'31", in SW¼SW¼ sec.7, T.19 N., R.5 E., Pierce County, Hydrologic Unit 17110014, at road bridge 0.5 mi (0.8 km) east of McMillin and 0.7 mi (1.1 km) downstream from Carbon River.

DRAINAGE AREA.--416 mi² (1,077 km²).

PERIOD OF RECORD.--October 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTAN- TANEOUS DIS- CHARGE (CFS) | SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) | PH (UNITS) | TEMPER- ATURE (DEG C) | COLOR (PLAT- INUM- COBALT UNITS) | TUR- BID- ITY (JTU) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 14... | 1500 | 528 | 79 | 7.7 | 11.3 | 29 | 9 |
| 20... | 1620 | 1400 | 51 | 7.4 | 9.1 | 71 | 28 |
| NOV | | | | | | | |
| 03... | 1425 | 2490 | 46 | 7.4 | 10.4 | 50 | 17 |
| 17... | 1520 | 1830 | 65 | 7.4 | 5.3 | 54 | 12 |
| DEC | | | | | | | |
| 01... | 1540 | -- | 46 | 7.2 | 6.8 | 246 | 760 |
| 15... | 1455 | 2310 | 58 | 6.8 | 5.2 | 46 | 6 |
| JAN | | | | | | | |
| 12... | 1410 | 2270 | 65 | 7.3 | 4.5 | 42 | 5 |
| 26... | 1340 | 2080 | 64 | 7.0 | 4.6 | 50 | 9 |
| FEB | | | | | | | |
| 02... | 1405 | 2030 | 60 | 7.5 | 4.3 | 29 | 5 |
| 17... | 1450 | 1940 | 65 | 7.4 | 5.3 | 50 | 8 |
| MAR | | | | | | | |
| 01... | 1330 | 1450 | 73 | 7.2 | 4.8 | 79 | 18 |
| 16... | 1410 | 1140 | 78 | 7.7 | 8.6 | 21 | 3 |
| APR | | | | | | | |
| 05... | 1420 | 1350 | 74 | 7.5 | 10.5 | 21 | 2 |
| 19... | 1430 | 1230 | 70 | 7.7 | 10.5 | 25 | 4 |
| MAY | | | | | | | |
| 03... | 1440 | 2310 | 48 | 7.6 | 11.0 | 25 | 9 |
| 17... | 1440 | 1600 | 48 | 7.9 | 11.5 | 17 | 5 |
| JUN | | | | | | | |
| 01... | 1430 | 1170 | 60 | 7.6 | 10.6 | 18 | 4 |
| 14... | 1435 | 1120 | 60 | 7.9 | 14.7 | 25 | 5 |
| JUL | | | | | | | |
| 06... | 1445 | 1500 | 43 | 7.5 | 15.7 | 46 | 25 |
| 19... | 1525 | 1330 | 42 | 7.4 | 15.2 | 54 | 52 |
| AUG | | | | | | | |
| 02... | 1435 | 1080 | 53 | 7.1 | 15.3 | 65 | 50 |
| 16... | 1419 | 1350 | 58 | 7.4 | 13.6 | 50 | 18 |
| SEP | | | | | | | |
| 07... | 1315 | 982 | 59 | 7.5 | 13.4 | 46 | 20 |
| 27... | 1405 | 890 | 60 | 7.4 | 14.1 | -- | 53 |

| DATE | DIS- SOLVED OXYGEN (MG/L) | IMME- DIATE COLI- FORM (COL. PER 100 ML) | FECAL COLI- FORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO- GEN (N) (MG/L) | TOTAL PHOS- PHORUS (P) (MG/L) | DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 14... | 11.5 | B800 | B80 | .07 | .07 | .04 | .02 |
| 20... | 11.6 | B1200 | <100 | .16 | .12 | .11 | .01 |
| NOV | | | | | | | |
| 03... | 11.2 | <200 | B30 | .16 | .08 | .06 | .00 |
| 17... | 12.7 | B450 | B40 | .33 | .05 | .08 | .00 |
| DEC | | | | | | | |
| 01... | 11.6 | 12000 | B140 | .26 | .08 | 2.3 | .00 |
| 15... | 12.6 | <200 | B36 | .25 | .06 | .03 | .00 |
| JAN | | | | | | | |
| 12... | 12.9 | 400 | 48 | .31 | .09 | .07 | .04 |
| 26... | 12.8 | 200 | B18 | .22 | .08 | .02 | .00 |
| FEB | | | | | | | |
| 02... | 13.0 | B150 | B10 | .19 | .08 | .02 | .01 |
| 17... | 12.3 | 2100 | B560 | .25 | .14 | .05 | .02 |
| MAR | | | | | | | |
| 01... | 12.9 | B100 | <50 | .28 | .10 | .04 | .00 |
| 16... | 12.3 | B130 | B16 | .14 | .03 | .01 | .00 |
| APR | | | | | | | |
| 05... | 12.3 | B55 | <2 | .09 | .04 | .01 | .01 |
| 19... | 12.5 | B120 | B28 | .05 | .10 | .02 | .01 |
| MAY | | | | | | | |
| 03... | 12.0 | B90 | B20 | .06 | .10 | .02 | .00 |
| 17... | 12.1 | 40 | 6 | .03 | .05 | .01 | .00 |
| JUN | | | | | | | |
| 01... | 12.2 | >70 | 16 | .03 | .08 | .02 | .00 |
| 14... | 12.0 | B60 | B14 | .04 | .10 | .02 | .01 |
| JUL | | | | | | | |
| 06... | 10.8 | B200 | B30 | .02 | .17 | .08 | .01 |
| 19... | 11.6 | B50 | B6 | .02 | .14 | .12 | .01 |
| AUG | | | | | | | |
| 02... | 10.3 | B170 | B40 | .01 | .31 | .15 | .01 |
| 16... | 10.7 | B400 | B130 | .09 | .13 | .08 | .00 |
| SEP | | | | | | | |
| 07... | 11.3 | <200 | B20 | .02 | .12 | .06 | .00 |
| 27... | 10.4 | 220 | B40 | .02 | .27 | .22 | .01 |

B Results based upon colony counts outside the ideal range.

## 12097500 GREENWATER RIVER AT GREENWATER, WA

LOCATION.--Lat 47°09'13", long 121°38'04", in NW¼NW¼ sec.11, T.19 N., R.9 E., Pierce County, Hydrologic Unit 17110014, on left bank 0.9 mi (1.4 km) east of Greenwater and 1.2 mi (1.9 km) upstream from mouth.

DRAINAGE AREA.--73.5 mi² (190.4 km²).

PERIOD OF RECORD.--September 1911 to August 1912 (fragmentary), May 1929 to current year. Published as "near Enumclaw" 1911-12.

REVISED RECORDS.--WSP 1716: 1947(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,727.07 ft (526.411 m). Prior to Aug. 10, 1912, nonrecording gages at approximately present site at different datums. May 1, 1929, to Aug. 14, 1934, water-stage recorder at site 900 ft (274 m) upstream at different datum.

REMARKS.--Records good except those for periods of no gage-height record, Nov. 2 to Dec. 4 and July 12 to Aug. 29, which are poor. No regulation or diversion above station.

AVERAGE DISCHARGE.--47 years, 213 ft³/s (6.032 m³/s) 39.35 in/yr (999 mm/yr), 154,300 acre-ft/yr (190 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,360 ft³/s (152 m³/s) Nov. 22, 1959, gage height, 7.67 ft (2.338 m), from rating curve extended above 1,200 ft³/s (34.0 m³/s) on basis of slope-area measurement of peak flow; minimum, 23 ft³/s (0.65 m³/s) Oct. 7, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,140 ft³/s (117 m³/s) Dec. 2, gage height, 6.53 ft (1.990 m) from high-water mark and from rating curve extended as explained above; minimum, 47 ft³/s (1.33 m³/s) Oct. 14; minimum gage height, 0.84 ft (0.256 m), Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 49 | 163 | 1200 | 490 | 312 | 142 | 144 | 398 | 282 | 297 | 115 | 111 |
| 2 | 49 | 300 | 3000 | 450 | 303 | 142 | 142 | 585 | 264 | 285 | 115 | 107 |
| 3 | 51 | 750 | 2200 | 420 | 294 | 140 | 142 | 530 | 250 | 273 | 110 | 104 |
| 4 | 60 | 650 | 1600 | 400 | 273 | 132 | 146 | 466 | 230 | 270 | 110 | 102 |
| 5 | 58 | 550 | 1240 | 438 | 250 | 134 | 185 | 434 | 220 | 267 | 105 | 100 |
| 6 | 63 | 480 | 906 | 378 | 237 | 132 | 267 | 402 | 240 | 267 | 110 | 111 |
| 7 | 54 | 420 | 786 | 336 | 225 | 132 | 267 | 418 | 260 | 273 | 140 | 111 |
| 8 | 52 | 370 | 858 | 336 | 215 | 130 | 343 | 520 | 290 | 300 | 130 | 100 |
| 9 | 51 | 330 | 876 | 312 | 205 | 134 | 366 | 640 | 320 | 288 | 125 | 96 |
| 10 | 51 | 300 | 762 | 294 | 192 | 142 | 336 | 715 | 350 | 273 | 120 | 92 |
| 11 | 50 | 240 | 655 | 312 | 220 | 142 | 390 | 670 | 320 | 258 | 115 | 91 |
| 12 | 49 | 260 | 555 | 285 | 300 | 140 | 350 | 585 | 290 | 250 | 110 | 88 |
| 13 | 48 | 250 | 470 | 261 | 330 | 138 | 306 | 585 | 270 | 235 | 110 | 88 |
| 14 | 49 | 350 | 418 | 329 | 310 | 136 | 270 | 585 | 250 | 222 | 115 | 88 |
| 15 | 61 | 550 | 460 | 1430 | 300 | 134 | 247 | 535 | 270 | 210 | 120 | 91 |
| 16 | 54 | 480 | 420 | 1770 | 290 | 136 | 222 | 525 | 350 | 202 | 140 | 86 |
| 17 | 52 | 420 | 380 | 1150 | 280 | 142 | 205 | 530 | 450 | 195 | 135 | 83 |
| 18 | 60 | 370 | 350 | 888 | 260 | 152 | 190 | 480 | 440 | 187 | 140 | 82 |
| 19 | 87 | 330 | 320 | 695 | 240 | 152 | 180 | 438 | 420 | 178 | 150 | 79 |
| 20 | 87 | 290 | 300 | 565 | 230 | 144 | 210 | 398 | 400 | 172 | 200 | 78 |
| 21 | 88 | 260 | 280 | 462 | 220 | 142 | 200 | 362 | 370 | 160 | 190 | 76 |
| 22 | 90 | 240 | 260 | 418 | 210 | 142 | 195 | 350 | 340 | 155 | 180 | 75 |
| 23 | 88 | 230 | 240 | 374 | 200 | 142 | 182 | 343 | 320 | 150 | 170 | 75 |
| 24 | 82 | 1100 | 280 | 332 | 190 | 164 | 190 | 336 | 300 | 145 | 160 | 73 |
| 25 | 100 | 1000 | 350 | 303 | 190 | 158 | 187 | 332 | 290 | 140 | 150 | 72 |
| 26 | 120 | 1200 | 600 | 282 | 180 | 150 | 178 | 322 | 280 | 135 | 140 | 71 |
| 27 | 105 | 800 | 600 | 370 | 170 | 146 | 178 | 362 | 270 | 130 | 135 | 69 |
| 28 | 95 | 600 | 500 | 382 | 160 | 144 | 190 | 366 | 285 | 125 | 130 | 68 |
| 29 | 130 | 500 | 540 | 378 | 150 | 142 | 212 | 346 | 294 | 125 | 125 | 67 |
| 30 | 190 | 450 | 600 | 350 | --- | 142 | 273 | 325 | 297 | 120 | 120 | 65 |
| 31 | 170 | --- | 540 | 322 | --- | 148 | --- | 303 | --- | 120 | 115 | --- |
| TOTAL | 2393 | 14273 | 22546 | 15512 | 6936 | 4396 | 6893 | 14186 | 9212 | 6407 | 4130 | 2599 |
| MEAN | 77.2 | 476 | 727 | 500 | 239 | 142 | 230 | 458 | 307 | 207 | 133 | 86.6 |
| MAX | 190 | 1200 | 3000 | 1770 | 330 | 164 | 390 | 715 | 450 | 300 | 200 | 111 |
| MIN | 48 | 163 | 240 | 261 | 150 | 130 | 142 | 303 | 220 | 120 | 105 | 65 |
| CFSM | 1.05 | 6.48 | 9.89 | 6.80 | 3.25 | 1.93 | 3.13 | 6.23 | 4.18 | 2.82 | 1.81 | 1.18 |
| IN. | 1.21 | 7.22 | 11.41 | 7.85 | 3.51 | 2.22 | 3.49 | 7.18 | 4.66 | 3.24 | 2.09 | 1.32 |
| AC-FT | 4750 | 28310 | 44720 | 30770 | 13760 | 8720 | 13670 | 28140 | 18270 | 12710 | 8190 | 5160 |

CAL YR 1975 TOTAL 112872 MEAN 309 MAX 3000 MIN 48 CFSM 4.20 IN 57.13 AC-FT 223900
WTR YR 1976 TOTAL 109483 MEAN 299 MAX 3000 MIN 48 CFSM 4.07 IN 55.41 AC-FT 217200

## 12097850 WHITE RIVER BELOW CLEARWATER RIVER NEAR BUCKLEY, WA

LOCATION.--Lat 47°08'49", long 121°51'32", in NE¼SW¼ sec.12, T.19 N., R.7 E., King County, Hydrologic Unit 17110014, on right bank 300 ft (91 m) upstream from Canyon Creek, 1.5 mi (2.4 km) downstream from Clearwater River and 6.4 mi (10.3 km) east of Buckley.

DRAINAGE AREA.--375 $mi^2$ (971 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1974 to September 1976 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 1,120 ft (341 m) from topographic map.

REMARKS.--Water discharge records good. No known regulation or diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 $ft^3/s$ (646 $m^3/s$) Dec. 2, 1975, gage height, 8.00 ft (2.438 m) from high-water mark in well; minimum, 265 $ft^3/s$ (7.50 $m^3/s$) Nov. 4, 5, 6, 1974, gage height, 0.83 ft (0.253 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,800 $ft^3/s$ (646 $m^3/s$) Dec. 2, gage height, 8.00 ft (2.438 m); from high-water mark in well; minimum, 405 $ft^3/s$ (11.5 $m^3/s$) Oct. 14, gage height, 1.00 ft (0.305 m).

REVISIONS.--The maximum discharge for water year 1975 has been revised to 15,100 $ft^3/s$ (428 $m^3/s$) Jan. 18, 1975, gage height, 6.37 ft (1.942 m), superseding figure published in the report for 1975.

CORRECTIONS.--The total second-foot days for water year 1975 is 560,958 $ft^3/s$; the previously published figure was incorrect. Additional yearly figures omitted for the 1975 water year are: mean, 1,537 $ft^3/s$; maximum, 13,600 $ft^3/s$; minimum, 270 $ft^3/s$; discharge per square mile, 4.10 $(ft^3/s)/mi^2$; runoff, 55.65 in; discharge in acre-feet, 1,113,000 acre-ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 500 | 1650 | 15000 | 1980 | 1730 | 806 | 950 | 2170 | 1400 | 1960 | 1220 | 1120 |
| 2 | 600 | 1770 | 15600 | 1700 | 1650 | 779 | 870 | 3140 | 1330 | 1790 | 1170 | 1080 |
| 3 | 650 | 2070 | 13600 | 1550 | 1560 | 761 | 851 | 2820 | 1230 | 1770 | 1220 | 1000 |
| 4 | 700 | 1820 | 13100 | 2190 | 1450 | 734 | 930 | 2500 | 1160 | 1930 | 1160 | 980 |
| 5 | 600 | 1630 | 7230 | 2560 | 1300 | 698 | 1130 | 2300 | 1110 | 1980 | 1110 | 980 |
| 6 | 580 | 1550 | 4430 | 1990 | 1260 | 698 | 1550 | 2090 | 1110 | 2260 | 1210 | 1020 |
| 7 | 504 | 1400 | 4240 | 1720 | 1210 | 698 | 1520 | 2120 | 1130 | 2580 | 1670 | 930 |
| 8 | 456 | 1250 | 4940 | 1910 | 1150 | 689 | 1990 | 2580 | 1270 | 3320 | 1470 | 833 |
| 9 | 512 | 1100 | 4460 | 1720 | 1100 | 716 | 2070 | 3190 | 1410 | 2700 | 1280 | 788 |
| 10 | 552 | 1000 | 3510 | 1550 | 1040 | 797 | 1860 | 3660 | 1580 | 2210 | 1220 | 770 |
| 11 | 472 | 950 | 2780 | 1740 | 1060 | 806 | 2170 | 3340 | 1620 | 1980 | 1210 | 779 |
| 12 | 440 | 900 | 2280 | 1520 | 1300 | 743 | 1980 | 2800 | 1590 | 1900 | 1180 | 788 |
| 13 | 419 | 900 | 1960 | 1330 | 1160 | 734 | 1720 | 2820 | 1560 | 1830 | 1180 | 761 |
| 14 | 419 | 1500 | 1690 | 2340 | 1090 | 725 | 1530 | 2880 | 1440 | 1790 | 1090 | 770 |
| 15 | 600 | 3000 | 1660 | 9380 | 1050 | 698 | 1450 | 2580 | 1500 | 1820 | 1280 | 797 |
| 16 | 520 | 2500 | 1480 | 11800 | 1330 | 716 | 1280 | 2520 | 2280 | 1940 | 1320 | 779 |
| 17 | 584 | 2000 | 1350 | 6250 | 1420 | 815 | 1170 | 2640 | 2540 | 2060 | 1160 | 779 |
| 18 | 860 | 1600 | 1290 | 4600 | 1460 | 1000 | 1120 | 2280 | 2740 | 1930 | 1100 | 779 |
| 19 | 1210 | 1300 | 1200 | 3610 | 1290 | 1010 | 1070 | 2040 | 2990 | 1760 | 1060 | 797 |
| 20 | 1220 | 1100 | 1130 | 2900 | 1150 | 940 | 1380 | 1820 | 2900 | 1700 | 1340 | 842 |
| 21 | 1100 | 1000 | 1060 | 2410 | 1070 | 870 | 1320 | 1690 | 2640 | 1580 | 1240 | 860 |
| 22 | 1010 | 950 | 1050 | 2210 | 1020 | 930 | 1230 | 1700 | 2340 | 1480 | 1200 | 860 |
| 23 | 950 | 1600 | 1120 | 2010 | 1020 | 950 | 1130 | 1720 | 2020 | 1510 | 1150 | 824 |
| 24 | 860 | 2800 | 1590 | 1790 | 1010 | 1100 | 1280 | 1670 | 1930 | 1600 | 1140 | 779 |
| 25 | 1170 | 2480 | 1670 | 1650 | 1010 | 1090 | 1290 | 1690 | 1830 | 1600 | 1380 | 770 |
| 26 | 1460 | 3320 | 3280 | 1530 | 950 | 1010 | 1180 | 1590 | 1660 | 1510 | 1290 | 761 |
| 27 | 1140 | 2780 | 3320 | 2880 | 930 | 960 | 1150 | 1900 | 1630 | 1410 | 1120 | 761 |
| 28 | 1060 | 2160 | 2440 | 2680 | 910 | 930 | 1180 | 1930 | 1790 | 1300 | 1090 | 761 |
| 29 | 1650 | 1730 | 2820 | 2320 | 851 | 870 | 1280 | 1770 | 2140 | 1320 | 1070 | 770 |
| 30 | 2340 | 2610 | 3170 | 2040 | --- | 860 | 1590 | 1650 | 2090 | 1240 | 1100 | 761 |
| 31 | 1850 | --- | 2480 | 1830 | --- | 1020 | --- | 1500 | --- | 1220 | 1110 | --- |
| TOTAL | 26988 | 52420 | 126930 | 87690 | 34531 | 26153 | 41221 | 71100 | 53960 | 56980 | 37540 | 25279 |
| MEAN | 871 | 1747 | 4095 | 2829 | 1191 | 844 | 1374 | 2294 | 1799 | 1838 | 1211 | 843 |
| MAX | 2340 | 3320 | 15600 | 11800 | 1730 | 1100 | 2170 | 3660 | 2990 | 3320 | 1670 | 1120 |
| MIN | 419 | 900 | 1050 | 1330 | 851 | 689 | 851 | 1500 | 1110 | 1220 | 1060 | 761 |
| CFSM | 2.32 | 4.66 | 10.9 | 7.54 | 3.18 | 2.25 | 3.66 | 6.12 | 4.80 | 4.90 | 3.23 | 2.25 |
| IN. | 2.68 | 5.20 | 12.59 | 8.70 | 3.43 | 2.59 | 4.09 | 7.05 | 5.35 | 5.65 | 3.72 | 2.51 |
| AC-FT | 53530 | 104000 | 251800 | 173900 | 68490 | 51870 | 81760 | 141000 | 107000 | 113000 | 74460 | 50140 |

CAL YR 1975 TOTAL 692899 MEAN 1898 MAX 15600 MIN 419 CFSM 5.06 IN 68.74 AC-FT 1374000
WTR YR 1976 TOTAL 640792 MEAN 1751 MAX 15600 MIN 419 CFSM 4.67 IN 63.57 AC-FT 1271000

## 12097850 WHITE RIVER BELOW CLEARWATER RIVER NEAR BUCKLEY, WA--Continued

### QUALITY-WATER RECORDS

PERIOD OF RECORD.--Water years 1974 to June 1976 (discontinued).

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE.--June 1974 to June 1976.

COOPERATION.--Corps of Engineers, Seattle.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily, 6,200 mg/l, Dec. 1, 1975; minimum daily, 1 mg/l Mar. 9-16, 1976.
SEDIMENT DISCHARGE: Maximum daily, 251,000 tons (228,000 tonnes), Dec. 1, 1975; minimum daily, 1.9 tons (1.7 tonnes) Mar. 9, 15, 16, 1976.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily, 6,200 mg/l Dec. 1; minimum daily, 1 mg/l Mar. 9-16.
SEDIMENT DISCHARGE: Maximum daily, 251,000 tons (228,000 tonnes) Dec. 1; minimum daily, 1.9 tons (1.7 tonnes) Mar. 9, 15, 16.

REVISIONS.--Revised suspended-sediment discharge data for the water year 1975 are given below. These figures supersede those published in the report for 1975.

| Date | | Mean Discharge (cfs) | Mean Concentration (mg/l) | Sediment Discharge (tons/day) |
|---|---|---|---|---|
| May | 30, 1975 | 2,930 | 100 | 791 |
| | 31 | 3,630 | 320 | 3,140 |
| | Month | 82,250 | --- | 19,108 |
| June | 1, 1975 | 3,990 | 420 | 4,520 |
| | 2 | 4,740 | 1,120 | 14,300 |
| | 3 | 4,290 | 490 | 5,680 |
| | 4 | 3,860 | 440 | 4,590 |
| | 5 | 3,950 | 400 | 4,270 |
| | Month | 96,670 | --- | 77,194 |
| | Year | 560,958 | | 574,496.4 |

Revised suspended sediment and particle-size data for the water years 1974-75 are given below. These figures supersede those published in the report for 1975. The column in this table headed "Discharge" should have read "Instantaneous Discharge."

| Date | Time | Instantaneous Discharge (cfs) | Suspended Sediment (mg/l) | Suspended Sediment Discharge (t/day) | Total Sediment Discharge (t/day) |
|---|---|---|---|---|---|
| June 24, 1974 | 1255 | 3,790 | 353 | 3,610 | 3,810 |
| June 13, 1975 | 0920 | 2,000 | 317 | 2,980 | 3,400 |

### SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | |
|---|---|---|---|---|---|---|---|---|---|
| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| 1 | 500 | 110 | 148 | 1650 | 511 | 2280 | 15000 | 6200 | 251000 |
| 2 | 600 | 112 | 181 | 1770 | 416 | 1990 | 15600 | 4680 | 197000 |
| 3 | 650 | 102 | 179 | 2070 | 339 | 1890 | 13600 | 5310 | 195000 |
| 4 | 700 | 93 | 176 | 1820 | 276 | 1360 | 13100 | 4100 | 145000 |
| 5 | 600 | 85 | 138 | 1630 | 225 | 990 | 7230 | 1400 | 27300 |
| 6 | 580 | 78 | 122 | 1550 | 183 | 766 | 4430 | 870 | 10400 |
| 7 | 504 | 71 | 97 | 1400 | 137 | 518 | 4240 | 510 | 5840 |
| 8 | 456 | 65 | 80 | 1250 | 102 | 344 | 4940 | 321 | 4280 |
| 9 | 512 | 59 | 82 | 1100 | 77 | 229 | 4460 | 202 | 2430 |
| 10 | 552 | 52 | 78 | 1000 | 57 | 154 | 3510 | 127 | 1200 |
| 11 | 472 | 46 | 59 | 950 | 43 | 110 | 2780 | 80 | 600 |
| 12 | 440 | 41 | 49 | 900 | 32 | 78 | 2280 | 51 | 314 |
| 13 | 419 | 36 | 41 | 900 | 24 | 58 | 1960 | 32 | 169 |
| 14 | 419 | 32 | 36 | 1500 | 27 | 109 | 1690 | 25 | 114 |
| 15 | 600 | 28 | 45 | 3000 | 30 | 243 | 1660 | 20 | 90 |
| 16 | 520 | 25 | 35 | 2500 | 33 | 223 | 1480 | 16 | 64 |
| 17 | 584 | 55 | 87 | 2000 | 37 | 200 | 1350 | 13 | 47 |
| 18 | 860 | 119 | 276 | 1600 | 41 | 177 | 1290 | 10 | 35 |
| 19 | 1210 | 259 | 846 | 1300 | 45 | 158 | 1200 | 12 | 39 |
| 20 | 1220 | 566 | 1860 | 1100 | 50 | 148 | 1130 | 14 | 43 |
| 21 | 1100 | 339 | 1010 | 1000 | 100 | 270 | 1060 | 16 | 46 |
| 22 | 1010 | 203 | 554 | 950 | 201 | 516 | 1050 | 19 | 54 |
| 23 | 950 | 122 | 313 | 1600 | 404 | 1750 | 1120 | 22 | 67 |
| 24 | 860 | 159 | 369 | 2800 | 812 | 6140 | 1590 | 26 | 112 |
| 25 | 1170 | 207 | 654 | 2480 | 510 | 3410 | 1670 | 27 | 122 |
| 26 | 1460 | 269 | 1060 | 3320 | 320 | 2870 | 3280 | 29 | 257 |
| 27 | 1140 | 350 | 1080 | 2780 | 201 | 1510 | 3320 | 30 | 269 |
| 28 | 1060 | 455 | 1300 | 2160 | 205 | 1200 | 2440 | 32 | 211 |
| 29 | 1650 | 592 | 2640 | 1730 | 210 | 981 | 2820 | 33 | 251 |
| 30 | 2340 | 770 | 4860 | 2610 | 1000 | 7050 | 3170 | 35 | 300 |
| 31 | 1850 | 627 | 3130 | --- | --- | --- | 2480 | 37 | 248 |
| TOTAL | 26988 | --- | 21585 | 52420 | --- | 37722 | 126930 | --- | 842902 |

12097850 WHITE RIVER BELOW CLEARWATER RIVER NEAR BUCKLEY, WA--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | JANUARY | | | FEBRUARY | | | MARCH | | |
|---|---|---|---|---|---|---|---|---|---|
| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| 1 | 1980 | 33 | 176 | 1730 | 9 | 42 | 806 | 4 | 8.7 |
| 2 | 1700 | 30 | 138 | 1650 | 8 | 36 | 779 | 3 | 6.3 |
| 3 | 1550 | 26 | 109 | 1560 | 8 | 34 | 761 | 3 | 6.2 |
| 4 | 2190 | 24 | 142 | 1450 | 7 | 27 | 734 | 2 | 4.0 |
| 5 | 2560 | 21 | 145 | 1300 | 7 | 25 | 698 | 2 | 3.8 |
| 6 | 1990 | 19 | 102 | 1260 | 7 | 24 | 698 | 2 | 3.8 |
| 7 | 1720 | 17 | 79 | 1210 | 7 | 23 | 698 | 2 | 3.8 |
| 8 | 1910 | 15 | 77 | 1150 | 7 | 22 | 689 | 2 | 3.7 |
| 9 | 1720 | 16 | 74 | 1100 | 7 | 21 | 716 | 1 | 1.9 |
| 10 | 1550 | 17 | 71 | 1040 | 7 | 20 | 797 | 1 | 2.2 |
| 11 | 1740 | 17 | 80 | 1060 | 7 | 20 | 806 | 1 | 2.2 |
| 12 | 1520 | 18 | 74 | 1300 | 7 | 25 | 743 | 1 | 2.0 |
| 13 | 1330 | 19 | 68 | 1160 | 6 | 19 | 734 | 1 | 2.0 |
| 14 | 2340 | 20 | 126 | 1090 | 5 | 15 | 725 | 1 | 2.0 |
| 15 | 9380 | 4140 | 105000 | 1050 | 5 | 14 | 698 | 1 | 1.9 |
| 16 | 11800 | 4170 | 133000 | 1330 | 4 | 14 | 716 | 1 | 1.9 |
| 17 | 6250 | 330 | 5570 | 1420 | 3 | 12 | 815 | 2 | 4.4 |
| 18 | 4600 | 110 | 1370 | 1460 | 3 | 12 | 1000 | 2 | 5.4 |
| 19 | 3610 | 82 | 799 | 1290 | 3 | 10 | 1010 | 2 | 5.5 |
| 20 | 2900 | 61 | 478 | 1150 | 2 | 6.2 | 940 | 3 | 7.6 |
| 21 | 2410 | 46 | 299 | 1070 | 2 | 5.8 | 870 | 3 | 7.0 |
| 22 | 2210 | 34 | 203 | 1020 | 3 | 8.3 | 930 | 4 | 10 |
| 23 | 2010 | 25 | 136 | 1020 | 3 | 8.3 | 950 | 4 | 10 |
| 24 | 1790 | 18 | 87 | 1010 | 4 | 11 | 1100 | 3 | 8.9 |
| 25 | 1650 | 14 | 62 | 1010 | 5 | 14 | 1090 | 3 | 8.8 |
| 26 | 1530 | 10 | 41 | 950 | 6 | 15 | 1010 | 3 | 8.2 |
| 27 | 2880 | 10 | 78 | 930 | 8 | 20 | 960 | 3 | 7.8 |
| 28 | 2680 | 10 | 72 | 910 | 6 | 15 | 930 | 3 | 7.5 |
| 29 | 2320 | 9 | 56 | 851 | 5 | 11 | 870 | 2 | 4.7 |
| 30 | 2040 | 9 | 50 | --- | --- | --- | 860 | 2 | 4.6 |
| 31 | 1830 | 9 | 44 | --- | --- | --- | 1020 | 2 | 5.5 |
| TOTAL | 87690 | --- | 248806 | 34531 | --- | 529.6 | 26153 | --- | 162.3 |

| | APRIL | | | MAY | | | JUNE | | |
|---|---|---|---|---|---|---|---|---|---|
| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| 1 | 950 | 3 | 7.7 | 2170 | 5 | 29 | 1400 | 3 | 11 |
| 2 | 870 | 4 | 9.4 | 3140 | 7 | 59 | 1330 | 2 | 7.2 |
| 3 | 851 | 6 | 14 | 2820 | 9 | 69 | 1230 | 2 | 6.6 |
| 4 | 930 | 9 | 23 | 2500 | 12 | 81 | 1160 | 3 | 9.4 |
| 5 | 1130 | 14 | 43 | 2300 | 16 | 99 | 1110 | 3 | 9.0 |
| 6 | 1550 | 20 | 84 | 2090 | 13 | 73 | 1110 | 4 | 12 |
| 7 | 1520 | 16 | 66 | 2120 | 11 | 63 | 1130 | 4 | 12 |
| 8 | 1990 | 13 | 70 | 2580 | 15 | 104 | 1270 | 5 | 17 |
| 9 | 2070 | 11 | 61 | 3190 | 19 | 164 | 1410 | 6 | 23 |
| 10 | 1860 | 9 | 45 | 3660 | 25 | 247 | 1580 | 7 | 30 |
| 11 | 2170 | 7 | 41 | 3340 | 33 | 298 | 1620 | 8 | 35 |
| 12 | 1980 | 6 | 32 | 2800 | 44 | 333 | 1590 | 10 | 43 |
| 13 | 1720 | 5 | 23 | 2820 | 41 | 312 | 1560 | 8 | 34 |
| 14 | 1530 | 4 | 17 | 2880 | 38 | 295 | 1440 | 7 | 27 |
| 15 | 1450 | 3 | 12 | 2580 | 36 | 251 | 1500 | 6 | 24 |
| 16 | 1280 | 2 | 6.9 | 2520 | 28 | 191 | 2280 | 11 | 68 |
| 17 | 1170 | 2 | 6.3 | 2640 | 22 | 157 | 2540 | 22 | 151 |
| 18 | 1120 | 2 | 6.0 | 2280 | 17 | 105 | 2740 | 42 | 311 |
| 19 | 1070 | 2 | 5.8 | 2040 | 13 | 72 | 2990 | 80 | 646 |
| 20 | 1380 | 2 | 7.5 | 1820 | 13 | 64 | 2900 | 57 | 446 |
| 21 | 1320 | 2 | 7.1 | 1690 | 12 | 55 | 2640 | 40 | 285 |
| 22 | 1230 | 2 | 6.6 | 1700 | 12 | 55 | 2340 | 28 | 177 |
| 23 | 1130 | 2 | 6.1 | 1720 | 10 | 46 | 2020 | 20 | 109 |
| 24 | 1280 | 2 | 6.9 | 1670 | 8 | 36 | 1930 | 17 | 89 |
| 25 | 1290 | 2 | 7.0 | 1690 | 6 | 27 | 1830 | 15 | 74 |
| 26 | 1180 | 2 | 6.4 | 1590 | 5 | 21 | 1660 | 13 | 58 |
| 27 | 1150 | 2 | 6.2 | 1900 | 6 | 31 | 1630 | 18 | 79 |
| 28 | 1180 | 2 | 6.4 | 1930 | 8 | 42 | 1790 | 25 | 121 |
| 29 | 1280 | 3 | 10 | 1770 | 10 | 48 | 2140 | 34 | 196 |
| 30 | 1590 | 4 | 17 | 1650 | 7 | 31 | 2090 | 47 | 265 |
| 31 | --- | --- | --- | 1500 | 4 | 16 | --- | --- | --- |
| TOTAL | 41221 | --- | 660.3 | 71100 | --- | 3474 | 53960 | --- | 3375.2 |

## 12097850 WHITE RIVER BELOW CLEARWATER RIVER NEAR BUCKLEY, WA--Continued

### SUSPENDED SEDIMENT AND PARTICLE SIZE DECEMBER 1975 TO JUNE 1976

| DATE | TIME | TEMPER-ATURE (DEG C) | INSTAN-TANEOUS DIS-CHARGE (CFS) | SUS-PENDED SEDI-MENT (MG/L) | SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY) | SUS. SED. FALL DIAM. % FINER THAN .002 MM | SUS. SED. FALL DIAM. % FINER THAN .004 MM | SUS. SED. FALL DIAM. % FINER THAN .008 MM |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| 05... | 0950 | 5.2 | 7960 | 1360 | 29200 | 5 | 8 | 12 |
| 09... | 1540 | 3.5 | 4240 | 202 | 2280 | -- | -- | -- |
| JAN | | | | | | | | |
| 26... | 1140 | 3.3 | 1520 | 10 | 41 | -- | -- | -- |
| APR | | | | | | | | |
| 21... | 1530 | 6.8 | 1280 | 2 | 7.5 | -- | -- | -- |
| MAY | | | | | | | | |
| 07... | 0950 | 6.4 | 2120 | 11 | 66 | -- | -- | -- |
| 15... | 0715 | 5.2 | 2660 | 36 | 272 | -- | -- | -- |
| 22... | 0650 | 8.3 | 1740 | 12 | 64 | -- | -- | -- |
| 29... | 0705 | 5.0 | 1790 | 10 | 54 | -- | -- | -- |
| JUN | | | | | | | | |
| 05... | 0720 | 5.6 | 1130 | 3 | 11 | -- | -- | -- |
| 12... | 0640 | 6.7 | 2520 | 10 | 75 | -- | -- | -- |
| 19... | 0850 | 7.8 | 3060 | 80 | 646 | -- | -- | -- |
| 30... | 0920 | 8.2 | 2120 | 47 | 276 | -- | -- | -- |

| DATE | SUS. SED. FALL DIAM. % FINER THAN .016 MM | SUS. SED. FALL DIAM. % FINER THAN .031 MM | SUS. SED. FALL DIAM. % FINER THAN .062 MM | SUS. SED. FALL DIAM. % FINER THAN .125 MM | SUS. SED. FALL DIAM. % FINER THAN .250 MM | SUS. SED. FALL DIAM. % FINER THAN .500 MM | BED MAT. SIEVE DIAM. % FINER THAN .125 MM | BED MAT. SIEVE DIAM. % FINER THAN .250 MM | BED MAT. SIEVE DIAM. % FINER THAN .500 MM |
|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | |
| 05... | 18 | 25 | 38 | 56 | 85 | 98 | -- | -- | -- |
| 09... | -- | -- | 29 | -- | -- | -- | <1 | 3 | 14 |
| JAN | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- | 1 | 17 | 71 |
| APR | | | | | | | | | |
| 21... | -- | -- | 59 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 07... | -- | -- | 49 | -- | -- | -- | 1 | 15 | 81 |
| 15... | -- | -- | 42 | -- | -- | -- | <1 | 8 | 51 |
| 22... | -- | -- | 97 | -- | -- | -- | 0 | 15 | 74 |
| 29... | -- | -- | 20 | -- | -- | -- | 0 | 10 | 64 |
| JUN | | | | | | | | | |
| 05... | -- | -- | 79 | -- | -- | -- | 0 | 9 | 68 |
| 12... | -- | -- | 54 | -- | -- | -- | 0 | 17 | 81 |
| 19... | -- | -- | 50 | -- | -- | -- | <1 | 5 | 37 |
| 30... | -- | -- | 70 | -- | -- | -- | <1 | 16 | 75 |

| DATE | BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM | BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM | BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM | BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM | BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM | BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM | STREAM WIDTH (FT) | NUMBER OF SAM-PLING POINTS |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | 156 | 3 |
| 09... | 17 | 18 | 19 | 24 | 34 | 73 | 150 | 3 |
| JAN | | | | | | | | |
| 26... | 93 | 97 | 100 | -- | -- | -- | 144 | 3 |
| APR | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | |
| 07... | 97 | 99 | 100 | -- | -- | -- | 145 | 10 |
| 15... | 71 | 80 | 83 | 86 | 88 | 100 | 146 | 10 |
| 22... | 93 | 95 | 99 | 100 | -- | -- | 144 | 10 |
| 29... | 93 | 99 | 100 | -- | -- | -- | 144 | 10 |
| JUN | | | | | | | | |
| 05... | 94 | 99 | 100 | -- | -- | -- | 143 | -- |
| 12... | 94 | 97 | 100 | -- | -- | -- | 146 | 10 |
| 19... | 60 | 69 | 73 | 76 | 79 | 86 | 147 | 10 |
| 30... | 95 | 98 | 99 | 100 | -- | -- | 145 | 10 |

## 12098000 MUD MOUNTAIN LAKE NEAR BUCKLEY, WA

LOCATION.--Lat 47°08'27", long 121°55'48", in NE¼NE¼ sec.17, T.19 N., R.7 E., Pierce County, Hydrologic Unit 17110014, on left bank of reservoir just upstream from Mud Mountain Dam on White River, 5 mi (8.0 km) southeast of Buckley, 5.6 mi (9.0 km) downstream from Clearwater River, and at mile 29.7 (47.8 km).

DRAINAGE AREA.--400 mi² (1,036 km²).

PERIOD OF RECORD.--October 1943 to current year. Monthend contents only October 1943 to September 1944, published in WSP 1316. Prior to October 1970, published as Mud Mountain Reservoir near Buckley.

GAGE.--Nonrecording gage. Datum of gage is at mean sea level (levels by Corps of Engineers).

REMARKS.--Lake, for flood control, is formed by earth-fill dam. Embankment completed and storage began on small scale in 1942. Capacity, 106,000 acre-ft (131 hm³) between elevations 895 ft (272.8 m), invert of outlet tunnel, and 1,215 ft (370.3 m), spillway crest. Storage is not retained but is dissipated as soon after a flood as is possible, without creating damaging flows downstream, in order to have the maximum capacity available for any following flood which might develop.

COOPERATION.--Records of lake elevations and capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed since dam was completed, 55,880 acre-ft (68.9 hm³) Aug. 23, 1974, elevation, 1,150.0 ft (350.52 m); no pool at times in some years.

EXTREMES FOR CURRENT YEAR.-- Maximum contents observed, 34,030 acre-ft (42.0 hm³) Dec. 4, elevation, 1,110.5 ft (338.48 m); minimum observed, 62 acre-ft (0.076 hm³) Sept. 16, elevation, 912.0 ft (277.98 m).

Capacity table (elevation, in feet, and total contents, acre-feet)
(Based on area maps by Corps of Engineers in 1939)

| | | | | | |
|---|---|---|---|---|---|
| 920 | 107 | 945 | 491 | 1,020 | 6,260 |
| 925 | 141 | 955 | 817 | 1,040 | 9,680 |
| 930 | 191 | 970 | 1,520 | 1,070 | 17,380 |
| 935 | 266 | 985 | 2,510 | 1,100 | 29,050 |
| 940 | 366 | 1,000 | 3,830 | 1,150 | 55,880 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1120 | 134 | 13960 | 2600 | 4920 | 1090 | 2080 | 3920 | 17510 | 2510 | 1580 | 2060 |
| 2 | 937 | 141 | 23360 | 2240 | 3260 | 876 | 2120 | 6440 | 17450 | 2440 | 1520 | 303 |
| 3 | 1210 | 149 | 28010 | 2140 | 1940 | 817 | 2070 | 9640 | 17260 | 2290 | 1070 | 284 |
| 4 | 1510 | 158 | 34030 | 2360 | 1830 | 916 | 2140 | 11120 | 17000 | 2290 | 609 | 268 |
| 5 | 1640 | 158 | 31860 | 3830 | 1020 | 1220 | 2220 | 12450 | 15450 | 2290 | 578 | 1210 |
| 6 | 1710 | 149 | 21550 | 3170 | 1470 | 1530 | 2580 | 13330 | 14100 | 2440 | 609 | 366 |
| 7 | 1410 | 149 | 10750 | 2510 | 1830 | 1790 | 2870 | 14020 | 13120 | 2370 | 880 | 366 |
| 8 | 945 | 134 | 4690 | 2750 | 1830 | 1540 | 3570 | 15280 | 12650 | 2630 | 1110 | 233 |
| 9 | 548 | 127 | 2360 | 2750 | 1570 | 966 | 4450 | 17610 | 11710 | 2510 | 609 | 1880 |
| 10 | 779 | 127 | 2040 | 2110 | 1610 | 840 | 4500 | 20630 | 10580 | 2550 | 609 | 191 |
| 11 | 674 | 127 | 1870 | 2470 | 1210 | 578 | 4930 | 23960 | 9880 | 2220 | 548 | 174 |
| 12 | 344 | 2290 | 1480 | 2510 | 1210 | 698 | 5420 | 24570 | 6270 | 2140 | 548 | 174 |
| 13 | 438 | 775 | 426 | 2670 | 896 | 701 | 5150 | 24650 | 3080 | 1410 | 491 | 141 |
| 14 | 641 | 1200 | 848 | 5060 | 1220 | 802 | 4190 | 24490 | 2290 | 1150 | 1740 | 107 |
| 15 | 1190 | 2780 | 684 | 9170 | 1310 | 609 | 3260 | 24490 | 2360 | 743 | 491 | 107 |
| 16 | 1220 | 3170 | 2300 | 19070 | 1830 | 609 | 1650 | 24080 | 3490 | 5560 | 491 | 62 |
| 17 | 1030 | 2470 | 3930 | 17350 | 1650 | 1150 | 2150 | 24200 | 5110 | 10800 | 1910 | 2000 |
| 18 | 1620 | 1610 | 2490 | 19380 | 1760 | 691 | 2440 | 24120 | 4500 | 9440 | 578 | 1960 |
| 19 | 1940 | 191 | 1640 | 20440 | 1100 | 1420 | 1900 | 23720 | 4690 | 7430 | 464 | 2050 |
| 20 | 1480 | 464 | 2160 | 18900 | 937 | 1460 | 2140 | 23560 | 5700 | 5930 | 491 | 149 |
| 21 | 284 | 158 | 2150 | 19380 | 1000 | 1780 | 1770 | 23840 | 5640 | 4390 | 491 | 876 |
| 22 | 303 | 1530 | 2190 | 19380 | 988 | 2590 | 2070 | 24040 | 4500 | 2900 | 323 | 2110 |
| 23 | 726 | 1940 | 2200 | 19140 | 921 | 3520 | 2110 | 24490 | 2890 | 2040 | 641 | 2170 |
| 24 | 609 | 3090 | 2460 | 17610 | 825 | 2630 | 2170 | 24650 | 2360 | 2140 | 413 | 2140 |
| 25 | 389 | 2500 | 2530 | 15780 | 900 | 2590 | 3130 | 24740 | 2330 | 5540 | 2060 | 2140 |
| 26 | 2010 | 3430 | 2760 | 13720 | 892 | 2510 | 3370 | 24040 | 2140 | 9640 | 389 | 2140 |
| 27 | 1800 | 4450 | 3030 | 11850 | 817 | 2360 | 1890 | 23120 | 2360 | 9950 | 413 | 2140 |
| 28 | 1160 | 3590 | 2810 | 12470 | 1250 | 2100 | 2360 | 22690 | 2360 | 7050 | 438 | 2140 |
| 29 | 950 | 1960 | 3830 | 12140 | 1400 | 2060 | 2750 | 21620 | 2510 | 5050 | 438 | 2140 |
| 30 | 933 | 1360 | 4940 | 10300 | --- | 2060 | 3360 | 20520 | 2510 | 3510 | 366 | 2140 |
| 31 | 303 | --- | 4090 | 7390 | --- | 2110 | --- | 18940 | --- | 2100 | 323 | --- |
| MAX | 2010 | 4450 | 34030 | 20440 | 4920 | 3520 | 5420 | 24740 | 17510 | 10800 | 2060 | 2170 |
| MIN | 284 | 127 | 426 | 2110 | 817 | 578 | 1650 | 3920 | 2140 | 743 | 323 | 62 |
| †† | 930.9 | 1,010.0 | 994.9 | 1,019.2 | 964.6 | 979.3 | 997.8 | 1,072.7 | 985.0 | 975.4 | 957.2 | 980.0 |
| † | 203 | 4,930 | 3,340 | 6,140 | 1,240 | 2,100 | 3,610 | 18,260 | 2,510 | 1,840 | 904 | 2,140 |
| ‡ | -867 | +4,730 | -1,590 | +2,800 | -4,900 | +860 | +1,510 | +14,650 | -15,750 | -670 | -936 | +1,240 |

CAL YR 1975.................. +2,600
WTR YR 1976.................. +1,070

†† Monthend estimated elevation, in feet, at 2400 hours.
† Monthend estimated contents, in acre-feet.
‡ Change in contents in acre-feet.

## 12098500 WHITE RIVER NEAR BUCKLEY, WA

**LOCATION.**--Lat 47°09'05", long 121°56'55", in SW¼NW¼ sec.8, T.19 N., R.7 E., King County, Hydrologic Unit 17110014, on right bank 0.4 mi (0.6 km) upstream from Red Creek, 1.7 mi (2.7 km) downstream from Mud Mountain Dam, 3.8 mi (6.1 km) east of Buckley, 7.4 mi (11.9 km) downstream from Clearwater River and at mile 27.9 (44.9 km).

**DRAINAGE AREA.**--401 mi² (1,039 km²).

**PERIOD OF RECORD.**--October 1928 to November 1933, October 1938 to current year. Water temperatures March 1971 to September 1972, sediment records November 1971 to November 1972.

**REVISED RECORDS.**--WSP 1247: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is at mean sea level (Corps of Engineers bench mark). Oct. 26 to Dec. 9, 1928, nonrecording gage and Dec. 9, 1928, to Nov. 30, 1933, water-stage recorder, at site 3 mi (4.8 km) upstream at different datum. Nov. 26, 1938, to Feb. 14, 1939, nonrecording gage at present site and datum.

**REMARKS.**--Records good. Flow regulated by Mud Mountain Lake (see sta 12098000) for flood control. Storage is not retained and observed annual runoff closely represents natural runoff of basin. No diversion above station.

**COOPERATION.**--Water-stage recorder inspected by employees of Corps of Engineers.

**AVERAGE DISCHARGE.**--43 years, (water years, 1929-33, 1939-76), 1,472 ft³/s (41.69 m³/s) 49.85 in/yr (1,266 mm/yr), 1,066,000 acre-ft/yr (1,310 hm³/yr); adjusted for storage since December 1943.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 17,000 ft³/s (481 m³/s) Feb. 26, 1932, gage height, 17.5 ft (5.33 m), site and datum then in use, from rating curve extended above 3,500 ft³/s (99.1 m³/s); probably no flow for part of each day Oct. 1, 2, 7, 8, Nov. 14, Dec. 1, 5, 15, 1958, Jan. 3, Mar. 24, June 8, Aug. 19, 1959; minimum daily, 59 ft³/s (1.67 m³/s) June 25, 1957, Mar. 26, 1958.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in December 1933 reached a stage of 23.4 ft (7.13 m), from floodmarks, at former site, discharge, 28,000 ft³/s (793 m³/s), from rating curve extended above 3,500 ft³/s (99.1 m³/s).

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 12,700 ft³/s (360 m³/s) Dec. 2, elevation, 807.60 ft (246.156 m); minimum, 48 ft³/s (1.36 m³/s) Dec. 16, Sept. 21; minimum daily, 179 ft³/s (5.07 m³/s) July 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 530 | 1970 | 5670 | 2830 | 2540 | 988 | 982 | 1860 | 1810 | 2070 | 1300 | 1450 |
| 2 | 518 | 1740 | 12100 | 2130 | 2340 | 765 | 904 | 1970 | 1460 | 1860 | 1260 | 1180 |
| 3 | 566 | 2030 | 11400 | 2080 | 1680 | 820 | 880 | 2030 | 1400 | 1790 | 1300 | 1050 |
| 4 | 595 | 1760 | 11400 | 2310 | 1700 | 680 | 934 | 1980 | 1630 | 1970 | 1170 | 1020 |
| 5 | 625 | 1580 | 11200 | 2910 | 1260 | 655 | 1130 | 1840 | 1800 | 2000 | 1100 | 1040 |
| 6 | 720 | 1500 | 10600 | 2940 | 1230 | 640 | 1540 | 1820 | 1670 | 2270 | 1160 | 1090 |
| 7 | 655 | 1440 | 7780 | 2270 | 1200 | 690 | 1340 | 1780 | 1520 | 2410 | 1550 | 1050 |
| 8 | 610 | 1330 | 6640 | 2460 | 1190 | 958 | 1740 | 1750 | 1600 | 3090 | 1610 | 720 |
| 9 | 566 | 1210 | 5370 | 2270 | 1230 | 740 | 1950 | 1970 | 1910 | 2700 | 1320 | 964 |
| 10 | 590 | 1110 | 4040 | 2030 | 1010 | 832 | 1960 | 2010 | 1970 | 2280 | 1210 | 838 |
| 11 | 570 | 615 | 3330 | 2250 | 1200 | 856 | 1990 | 2350 | 2430 | 2050 | 1180 | 808 |
| 12 | 530 | 1040 | 2960 | 2000 | 1410 | 765 | 2030 | 2620 | 2960 | 2080 | 1180 | 826 |
| 13 | 422 | 1100 | 2560 | 1230 | 1200 | 755 | 2000 | 2740 | 2430 | 2040 | 1200 | 790 |
| 14 | 458 | 1180 | 2200 | 1690 | 1080 | 730 | 1940 | 2780 | 1540 | 1940 | 1120 | 844 |
| 15 | 514 | 2330 | 2150 | 5600 | 1040 | 740 | 1940 | 2570 | 1460 | 1300 | 1150 | 898 |
| 16 | 630 | 2600 | 1040 | 10400 | 1210 | 690 | 1540 | 2510 | 1800 | 179 | 1180 | 625 |
| 17 | 630 | 2140 | 1850 | 7180 | 1540 | 868 | 1100 | 2460 | 2640 | 1240 | 1410 | 635 |
| 18 | 695 | 1850 | 2310 | 4030 | 1680 | 1040 | 1250 | 2410 | 2780 | 2610 | 1200 | 844 |
| 19 | 1200 | 1420 | 1400 | 3990 | 1440 | 928 | 1260 | 2210 | 2680 | 2400 | 1050 | 1210 |
| 20 | 1540 | 1220 | 1510 | 3510 | 1230 | 844 | 1410 | 1850 | 2600 | 2240 | 1360 | 1060 |
| 21 | 1170 | 940 | 1440 | 1940 | 1110 | 820 | 1460 | 1650 | 2730 | 2180 | 1300 | 502 |
| 22 | 946 | 832 | 1430 | 2500 | 1070 | 534 | 1260 | 1620 | 2820 | 1980 | 1200 | 886 |
| 23 | 910 | 1300 | 1500 | 2540 | 1080 | 1040 | 1230 | 1580 | 2600 | 1630 | 1160 | 916 |
| 24 | 874 | 2200 | 2050 | 2600 | 1050 | 1260 | 1210 | 1690 | 2080 | 1180 | 898 | 838 |
| 25 | 886 | 2290 | 2170 | 2510 | 1090 | 1210 | 1210 | 1900 | 1930 | 212 | 1600 | 785 |
| 26 | 1500 | 2960 | 3510 | 2660 | 1010 | 1140 | 1510 | 2110 | 1760 | 336 | 1540 | 765 |
| 27 | 1220 | 2940 | 3900 | 2830 | 934 | 1070 | 1440 | 2240 | 1730 | 2240 | 1220 | 755 |
| 28 | 1330 | 2700 | 3010 | 2800 | 898 | 994 | 1070 | 2320 | 1820 | 2170 | 1170 | 765 |
| 29 | 1650 | 2240 | 2720 | 2730 | 892 | 922 | 1210 | 2370 | 2200 | 1890 | 1140 | 785 |
| 30 | 2430 | 1860 | 3620 | 2850 | --- | 910 | 1550 | 2330 | 2170 | 1820 | 1160 | 750 |
| 31 | 2010 | --- | 3480 | 2820 | --- | 1050 | --- | 2300 | --- | 1570 | 934 | --- |
| TOTAL | 28090 | 51427 | 136340 | 94890 | 37544 | 26934 | 42970 | 65620 | 61930 | 57727 | 38332 | 26689 |
| MEAN | 906 | 1714 | 4398 | 3061 | 1295 | 869 | 1432 | 2117 | 2064 | 1862 | 1237 | 890 |
| MAX | 2430 | 2960 | 12100 | 10400 | 2540 | 1260 | 2030 | 2780 | 2960 | 3090 | 1610 | 1450 |
| MIN | 422 | 615 | 1040 | 1230 | 892 | 534 | 880 | 1580 | 1400 | 179 | 898 | 502 |
| AC-FT | 55720 | 102000 | 270400 | 188200 | 74470 | 53420 | 85230 | 130200 | 122800 | 114500 | 76030 | 52940 |
| † | -867 | +4,727 | -1,590 | +2,800 | -4,900 | +860 | +1,510 | +14,650 | -15,750 | -670 | -936 | +1,236 |
| MEAN‡ | 892 | 1,794 | 4,371 | 3,106 | 1,209 | 883 | 1,458 | 2,354 | 1,799 | 1,850 | 1,221 | 911 |
| CFSM‡ | 2.22 | 4.47 | 10.9 | 7.75 | 3.01 | 2.20 | 3.64 | 5.87 | 4.49 | 4.61 | 3.04 | 2.27 |
| IN.‡ | 2.56 | 4.99 | 12.57 | 8.93 | 3.25 | 2.54 | 4.06 | 6.77 | 5.00 | 5.32 | 3.51 | 2.53 |
| AC-FT‡ | 54,850 | 106,700 | 268,800 | 191,000 | 69,570 | 54,280 | 86,740 | 144,800 | 107,000 | 113,800 | 75,090 | 54,180 |

CAL YR 1975: TOTAL 694,350 MEAN 1,902 MAX 12,100 MIN 422 AC-FT 1,377,000
DO.....: MEAN‡ 1,906 CFSM‡ 4.75 IN.‡ 64.53 AC-FT‡ 1,380,000
WTR YR 1976: TOTAL 668,493 MEAN 1,826 MAX 12,100 MIN 179 AC-FT 1,326,000
DO.....: MEAN‡ 1,829 CFSM‡ 4.56 IN.‡ 62.05 AC-FT‡ 1,327,000

† Change in contents, in acre-feet, in Mud Mountain Lake, furnished by Corps of Engineers
‡ Adjusted for change in contents in Mud Mountain Lake.

## 12101000 LAKE TAPPS NEAR SUMNER, WA

LOCATION.--Lat 47°14'28", long 122°11'26", in NE¼NE¼ sec.8, T.20 N., R.5 E., Pierce County, Hydrologic Unit 17110014, 1.7 mi (2.7 km) east of Dieringer and 3.5 mi (5.6 km) northeast of Sumner.

PERIOD OF RECORD.--November 1911 to current year. October 1934 to October 1950, change in contents published with records for Puyallup River at Puyallup. Monthend contents only November 1911 to September 1950, published in WSP 1316.

GAGE.--Nonrecording gage. Datum of gage is 0.7 ft (0.2 m) above mean sea level (levels by Puget Sound Power & Light Co.).

REMARKS.--Reservoir is formed by a diked natural lake into which a great part of the low-water flow of White River is diverted. Construction of dike began June 1910; storage began in 1911. Usable capacity (based on 1959 resurvey; capacity table dated July 28, 1959 put into use Oct. 1, 1958), 46,600 acre-ft (57.5 $hm^3$) between elevations 515 ft (157.0 m) normal minimum pool, and 543 ft (165.5 m) normal maximum pool. Dead storage unknown. Figures given herein represent usable contents. Reservoir is used for power development at the Dieringer White River powerplant.

COOPERATION.--Gage-height record and contents curve furnished by Puget Sound Power & Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 51,710 acre-ft (63.8 $hm^3$) June 30, 1958, gage height, 541.57 ft (165.071 m), capacity table dated Jan. 19, 1920; maximum gage height observed, 543.04 ft (165.519 m) June 19, 1967; minimum contents observed, 458 acre-ft (0.565 $hm^3$) June 24, 1912, gage height, 505.70 ft (154.137 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 46,479 acre-ft (57.3 $hm^3$) July 15, gage height, 542.93 ft (165.485 m); minimum observed, 3,749 acre-ft (4.62 $hm^3$) Mar. 23, gage height, 518.85 ft (158.145 m).

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Gage Height (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 542.48 | 45,345 | - |
| Oct. 31 | 542.56 | 45,547 | +202 |
| Nov. 30 | 542.20 | 44,641 | -906 |
| Dec. 31 | 532.40 | 22,881 | -21,760 |
| CAL YR 1975 | - | - | -20,157 |
| Jan. 31 | 540.81 | 41,241 | +18,360 |
| Feb. 29 | 531.64 | 21,466 | -19,775 |
| Mar. 31 | 522.00 | 7,125 | -14,341 |
| Apr. 30 | 537.05 | 32,526 | +25,401 |
| May 31 | 542.68 | 45,849 | +13,323 |
| June 30 | 542.36 | 45,043 | -806 |
| July 31 | 542.30 | 44,892 | -151 |
| Aug. 31 | 541.99 | 44,113 | -779 |
| Sept. 30 | 542.06 | 44,288 | +175 |
| WTR YR 1976 | - | - | -1,057 |

## 12101100 LAKE TAPPS DIVERSION AT DIERINGER, WA

LOCATION.--Lat 47°14'18", long 122°13'37", in SW¼NW¼ sec.7, T.20 N., R.5 E., Pierce County, Hydrologic Unit 17110014, on right bank 850 ft (259 m) downstream from White River powerplant at Dieringer and 1,400 ft (427 m) upstream from mouth.

PERIOD OF RECORD.--April 1958 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 60 ft (18 m), from topographic map.

REMARKS.--Records good. Flow regulated by White River powerplant.

AVERAGE DISCHARGE.--18 years, 992 $ft^3/s$ (28.09 $m^3/s$), 718,700 acre-ft/yr (886 $hm^3/s$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,530 $ft^3/s$ (71.6 $m^3/s$) Jan.29, 1965, gage height, 6.23 ft (1.899 m); minimum, 7.2 $ft^3/s$ (0.20 $m^3/s$) Sept. 29, 1967, gage height, 0.20 ft (0.061 m); minimum daily, 10 $ft^3/s$ (0.28 $m^3/s$) Aug. 21, 22, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,470 $ft^3/s$ (70.0 $m^3/s$) Dec. 2, gage height, 6.12 ft (1.865 m); minimum, 20 $ft^3/s$ (0.57 $m^3/s$), Apr. 27, gage height, 0.51 ft (0.155 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 433 | 1090 | 1110 | 1210 | 1950 | 875 | 950 | 744 | 1370 | 1260 | 25 | 26 |
| 2 | 257 | 1590 | 2100 | 1190 | 1950 | 1040 | 905 | 805 | 1370 | 1810 | 24 | 26 |
| 3 | 596 | 1170 | 2120 | 1160 | 1950 | 1110 | 81 | 1230 | 1370 | 1860 | 21 | 26 |
| 4 | 558 | 1490 | 2120 | 1140 | 1950 | 1030 | 28 | 1160 | 1370 | 1870 | 21 | 25 |
| 5 | 587 | 877 | 2140 | 1120 | 1940 | 1050 | 1050 | 1390 | 1370 | 1860 | 22 | 25 |
| 6 | 596 | 971 | 1780 | 1520 | 1940 | 704 | 900 | 1350 | 1370 | 1850 | 21 | 25 |
| 7 | 744 | 958 | 178 | 1040 | 1940 | 620 | 708 | 1370 | 1370 | 1870 | 21 | 25 |
| 8 | 767 | 939 | 184 | 1360 | 1930 | 1040 | 835 | 1370 | 1360 | 1870 | 21 | 24 |
| 9 | 776 | 1130 | 815 | 1570 | 1930 | 27 | 336 | 1370 | 1360 | 1870 | 21 | 26 |
| 10 | 772 | 902 | 990 | 1560 | 1930 | 238 | 1130 | 1380 | 1370 | 1870 | 21 | 26 |
| 11 | 533 | 379 | 1190 | 1560 | 1930 | 28 | 1230 | 1380 | 1370 | 1880 | 23 | 26 |
| 12 | 352 | 554 | 1340 | 1430 | 1820 | 28 | 492 | 1370 | 1370 | 1570 | 24 | 26 |
| 13 | 539 | 738 | 1140 | 1240 | 1580 | 28 | 995 | 1370 | 1360 | 1380 | 24 | 27 |
| 14 | 483 | 549 | 1220 | 1230 | 1580 | 28 | 1180 | 1370 | 1330 | 1310 | 24 | 28 |
| 15 | 416 | 535 | 1540 | 1250 | 1580 | 810 | 1280 | 1380 | 1360 | 935 | 24 | 27 |
| 16 | 372 | 654 | 1560 | 1390 | 1580 | 284 | 441 | 1600 | 1330 | 28 | 24 | 27 |
| 17 | 623 | 1440 | 1560 | 792 | 1670 | 616 | 1480 | 1810 | 1360 | 28 | 24 | 26 |
| 18 | 678 | 1020 | 1570 | 870 | 1910 | 935 | 1520 | 1850 | 1360 | 28 | 24 | 24 |
| 19 | 785 | 783 | 1550 | 1110 | 1930 | 1070 | 1430 | 1850 | 1360 | 27 | 24 | 24 |
| 20 | 1310 | 529 | 1560 | 1200 | 1930 | 792 | 1540 | 1790 | 1360 | 24 | 24 | 25 |
| 21 | 1380 | 547 | 1560 | 1310 | 1920 | 28 | 1420 | 1720 | 1360 | 24 | 24 | 25 |
| 22 | 1230 | 860 | 1560 | 835 | 1310 | 860 | 1340 | 1790 | 1360 | 24 | 24 | 26 |
| 23 | 1150 | 897 | 1560 | 596 | 780 | 1030 | 1340 | 1790 | 1490 | 24 | 24 | 520 |
| 24 | 988 | 1020 | 1570 | 756 | 1410 | 865 | 1340 | 1720 | 1820 | 24 | 24 | 692 |
| 25 | 791 | 1040 | 1480 | 830 | 700 | 564 | 1210 | 1540 | 1910 | 24 | 24 | 287 |
| 26 | 1010 | 1050 | 319 | 788 | 504 | 970 | 748 | 1370 | 1910 | 25 | 24 | 600 |
| 27 | 1180 | 1090 | 890 | 466 | 1300 | 930 | 406 | 1370 | 1910 | 26 | 24 | 756 |
| 28 | 1210 | 1150 | 1000 | 466 | 1020 | 860 | 148 | 1370 | 1840 | 27 | 24 | 636 |
| 29 | 1680 | 1160 | 1540 | 800 | 612 | 960 | 459 | 1370 | 1640 | 27 | 24 | 628 |
| 30 | 1330 | 1150 | 704 | 1940 | --- | 1040 | 736 | 1370 | 1520 | 26 | 25 | 652 |
| 31 | 1530 | --- | 780 | 1950 | --- | 1120 | --- | 1370 | --- | 25 | 26 | --- |
| TOTAL | 25656 | 28262 | 40730 | 35679 | 46476 | 21580 | 27658 | 44719 | 44000 | 25476 | 724 | 5336 |
| MEAN | 828 | 942 | 1314 | 1151 | 1603 | 696 | 922 | 1443 | 1467 | 822 | 23.4 | 178 |
| MAX | 1680 | 1590 | 2140 | 1950 | 1950 | 1120 | 1540 | 1850 | 1910 | 1880 | 26 | 756 |
| MIN | 257 | 379 | 178 | 466 | 504 | 27 | 28 | 744 | 1330 | 24 | 21 | 24 |
| AC-FT | 50890 | 56060 | 80790 | 70770 | 92190 | 42800 | 54860 | 88700 | 87270 | 50530 | 1440 | 10580 |

CAL YR 1975 TOTAL 375970 MEAN 1030 MAX 2140 MIN 25 AC-FT 745700
WTR YR 1976 TOTAL 346296 MEAN 946 MAX 2140 MIN 21 AC-FT 686900

## 12101500 PUYALLUP RIVER AT PUYALLUP, WA

LOCATION.--Lat 47°12'31", long 122°19'33", in SE¼NW¼ sec.20, T.20 N., R.4 E., Pierce County, Hydrologic Unit 17110014, on left bank 0.8 mi (1.3 km) upstream from bridge at Clark Creek, 2.0 mi (3.2 km) northwest of Puyallup City Hall, and at mile 6.6 (10.6 km)

DRAINAGE AREA.--948 $mi^2$ (2,455 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1914 to current year.

REVISED RECORDS.--WSP 832: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Dec. 3, 1919, at sites 1.2 mi (1.9 km) upstream and 900 ft (274 m) upstream at different datums. Dec. 3, 1919, to Nov. 9, 1935, at site 500 ft (152 m) upstream at datum 9.61 ft (2.929 m) higher than present datum.

REMARKS.--Records excellent. All diverted water returned to river above gage. Large part of flow of White River (a tributary) diverted through Lake Tapps. Flood flow regulated by Mud Mountain Lake on White River. Some pondage on tributaries and upper Puyallup River. Diurnal fluctuations caused by powerplants and glacial melt above station.

Since 1912 the city of Tacoma pipeline diversion from Green River has spilled as much as 123 $ft^3/s$ (3.48 $m^3/s$) daily, and since 1957 an average of about 26 $ft^3/s$ (0.74 $m^3/s$) per month into Puyallup River 0.5 mi (0.8 km) east of McMillin. Monthly mean discharge, in cubic feet per second, for the current year is as follows:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| October....... | 11.9 | January....... | 57.0 | April........ | 20.1 | July....... | 1.26 |
| November...... | 51.1 | February...... | 26.9 | May.......... | 35.9 | August..... | 2.33 |
| December...... | 82.1 | March......... | 5.83 | June......... | 9.12 | September.. | 11.2 |

AVERAGE DISCHARGE.--62 years, 3,406 $ft^3/s$ (96.46 $m^3/s$) 2,468,000 acre-ft/yr (3,043 $hm^3$) adjusted for storage in Lake Tapps since October 1934, and Mud Mountain Lake October 1944 to September 1947.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 $ft^3/s$ (1,610 $m^3/s$) Dec. 10, 1933, elevation, 31.0 ft (9.45 m), present datum; minimum, 306 $ft^3/s$ (8.67 $m^3/s$) Sept. 25, 1955, elevation, 8.23 ft (2.509 m); minimum daily, 400 $ft^3/s$ (11.3 $m^3/s$) Nov. 30, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,300 $ft^3/s$ (943 $m^3/s$) Dec. 2, elevation, 24.60 ft (7.498 m); minimum, 681 $ft^3/s$ (19.3 $m^3/s$) Oct. 14, elevation, 8.53 ft (2.600 m); minimum daily, 1,000 $ft^3/s$ (28.3 $m^3/s$) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1180 | 3840 | 16900 | 5690 | 5280 | 2790 | 2710 | 3030 | 3690 | 3320 | 2900 | 2510 |
| 2 | 1000 | 4400 | 31600 | 4700 | 4950 | 2710 | 2450 | 4490 | 3090 | 3700 | 2610 | 2900 |
| 3 | 1560 | 5310 | 30800 | 4360 | 4560 | 2590 | 1480 | 4380 | 2850 | 3620 | 3030 | 2460 |
| 4 | 1760 | 4990 | 29300 | 5160 | 4100 | 2460 | 1380 | 3860 | 2700 | 3820 | 2700 | 2330 |
| 5 | 1520 | 3720 | 20800 | 6320 | 3840 | 2400 | 2480 | 3870 | 2970 | 3980 | 2530 | 2330 |
| 6 | 1980 | 3630 | 16300 | 6170 | 3870 | 2080 | 2600 | 3560 | 2800 | 4220 | 2580 | 2550 |
| 7 | 1740 | 4030 | 13900 | 5070 | 3750 | 1930 | 2380 | 3400 | 2700 | 4660 | 3790 | 2370 |
| 8 | 1580 | 3830 | 14400 | 5870 | 3630 | 3040 | 2760 | 3770 | 2770 | 6600 | 4460 | 2030 |
| 9 | 1650 | 3730 | 12400 | 5680 | 3570 | 2210 | 2730 | 4390 | 3200 | 5930 | 3390 | 1550 |
| 10 | 1800 | 3100 | 9560 | 4990 | 3500 | 2430 | 3250 | 4840 | 3500 | 4870 | 3030 | 2060 |
| 11 | 1380 | 2270 | 7810 | 5480 | 3510 | 2370 | 3960 | 4710 | 3680 | 4280 | 2910 | 1810 |
| 12 | 1120 | 2390 | 6950 | 4990 | 3980 | 2090 | 3130 | 4660 | 4540 | 3970 | 2820 | 1880 |
| 13 | 1230 | 2670 | 6200 | 4150 | 3560 | 2030 | 3250 | 4700 | 4420 | 3620 | 2780 | 1830 |
| 14 | 1200 | 3480 | 5630 | 6060 | 3340 | 2030 | 3330 | 4910 | 3070 | 3320 | 2670 | 1920 |
| 15 | 1570 | 5850 | 5930 | 14600 | 3220 | 2840 | 3390 | 4330 | 3730 | 3420 | 2920 | 2340 |
| 16 | 1400 | 5950 | 5230 | 23000 | 3940 | 2240 | 2390 | 4430 | 4810 | 2160 | 3250 | 2040 |
| 17 | 1710 | 5580 | 4470 | 15100 | 4240 | 2790 | 2960 | 4670 | 5550 | 2490 | 2800 | 1560 |
| 18 | 2320 | 4250 | 4870 | 9400 | 4960 | 3560 | 3090 | 4400 | 5530 | 4600 | 2840 | 1890 |
| 19 | 2640 | 3390 | 4400 | 8150 | 4390 | 3630 | 2920 | 4110 | 5720 | 4320 | 2390 | 1930 |
| 20 | 3750 | 2650 | 4110 | 7020 | 4040 | 3340 | 3720 | 3700 | 5390 | 4140 | 2900 | 2420 |
| 21 | 3390 | 2370 | 3970 | 5690 | 3830 | 2410 | 3450 | 3270 | 4960 | 3820 | 2920 | 1920 |
| 22 | 2900 | 2300 | 4170 | 4640 | 3180 | 3160 | 3140 | 3310 | 4870 | 3680 | 2720 | 1640 |
| 23 | 2610 | 3040 | 4290 | 4420 | 2570 | 2980 | 3000 | 3370 | 4500 | 3480 | 2630 | 1660 |
| 24 | 2270 | 4880 | 6040 | 4390 | 3310 | 2900 | 3280 | 3330 | 4220 | 3400 | 2620 | 1800 |
| 25 | 2190 | 5950 | 6080 | 4050 | 2970 | 2640 | 3200 | 3360 | 3830 | 2240 | 2780 | 1420 |
| 26 | 3240 | 6570 | 7470 | 4280 | 2560 | 2760 | 2570 | 3240 | 3510 | 1900 | 3540 | 1560 |
| 27 | 2900 | 7400 | 9360 | 5690 | 3300 | 2790 | 2000 | 4150 | 3460 | 3160 | 2850 | 1840 |
| 28 | 2740 | 6200 | 6770 | 5420 | 3450 | 2640 | 1710 | 4180 | 3570 | 3770 | 2760 | 1650 |
| 29 | 3800 | 5050 | 7220 | 5020 | 2590 | 2580 | 1990 | 4000 | 3820 | 3510 | 2630 | 1670 |
| 30 | 5710 | 5280 | 7470 | 5760 | --- | 2520 | 2470 | 3980 | 3870 | 3460 | 2640 | 1650 |
| 31 | 5400 | --- | 6200 | 5660 | --- | 2840 | --- | 3930 | --- | 3250 | 2710 | --- |
| TOTAL | 71240 | 128100 | 320600 | 206890 | 107990 | 81780 | 83150 | 124330 | 117320 | 116710 | 90100 | 59520 |
| MEAN | 2298 | 4270 | 10340 | 6674 | 3724 | 2638 | 2772 | 4011 | 3911 | 3765 | 2906 | 1984 |
| MAX | 5710 | 7400 | 31600 | 23000 | 5280 | 3630 | 3960 | 4910 | 5720 | 6600 | 4460 | 2900 |
| MIN | 1000 | 2270 | 3970 | 4050 | 2560 | 1930 | 1380 | 3030 | 2700 | 1900 | 2390 | 1420 |
| AC-FT | 141300 | 254100 | 635900 | 410400 | 214200 | 162200 | 164900 | 246600 | 232700 | 231500 | 178700 | 118100 |
| † | +202 | -906 | -21,760 | +18,360 | -19,775 | -14,341 | +25,401 | +13,323 | -806 | -151 | -779 | +175 |
| MEAN‡ | 2,301 | 4,256 | 9,985 | 6,972 | 3,379 | 2,405 | 3,199 | 4,226 | 3,898 | 3,761 | 2,893 | 1,989 |
| AC-FT‡ | 141,500 | 253,200 | 614,100 | 424,800 | 194,400 | 147,900 | 190,300 | 259,900 | 231,900 | 231,300 | 177,900 | 118,300 |

CAL YR 1975: TOTAL 1,618,630 MEAN 4,435 MAX 31,600 MIN 1,000 AC-FT 3,211,000
DO.....: MEAN‡ 4,407 AC-FT‡ 3,191,000
WTR YR 1976: TOTAL 1,507,730 MEAN 4,119 MAX 31,600 MIN 1,000 AC-FT 2,991,000
DO.....: MEAN‡ 4,120 AC-FT‡ 2,990,000

† Change in contents, in acre-feet, in Lake Tapps, from information by Puget Sound Power & Light Co.
‡ Adjusted for change in contents in Lake Tapps.

## 12101500 PUYALLUP RIVER AT PUYALLUP, WA--Continued

## WATER-QUALITY RECORDS

LOCATION.--Water quality data obtained at Clark Creek bridge 0.8 mi (1.3 km) downstream from gage.

PERIOD OF RECORD.--Water years 1959-68, 1971-72, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1959 to September 1961, August 1965 to September 1966.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 15... | 1245 | 2200 | 78 | 7.6 | 11.2 | 42 | 30 | 11.0 | B2500 |
| 21... | 1425 | 3510 | 67 | 7.4 | 9.9 | 50 | 18 | 10.9 | B8000 |
| NOV | | | | | | | | | |
| 04... | 1100 | 5040 | 60 | 7.4 | 10.1 | 42 | 15 | 11.2 | B1000 |
| 18... | 1240 | 4450 | 76 | 7.3 | 5.4 | 42 | 8 | 12.3 | B60 |
| DEC | | | | | | | | | |
| 02... | 1130 | 34900 | 44 | 7.1 | 7.1 | 225 | 530 | 11.8 | B2000 |
| 16... | 1110 | 5610 | 69 | 6.8 | 4.9 | 42 | 9 | 12.3 | 660 |
| JAN | | | | | | | | | |
| 13... | 1155 | 4010 | 74 | 7.3 | 4.2 | 38 | 6 | 12.6 | 670 |
| 27... | 1135 | 6440 | 63 | 7.3 | 6.6 | 75 | 15 | 12.2 | 4400 |
| FEB | | | | | | | | | |
| 03... | 1130 | 4460 | 66 | 7.2 | 4.5 | 33 | 10 | 12.3 | B350 |
| 18... | 1130 | 5050 | 70 | 7.1 | 4.9 | 58 | 11 | 12.3 | 6900 |
| MAR | | | | | | | | | |
| 02... | 1145 | 3550 | 74 | 7.0 | 4.3 | 46 | 8 | 12.7 | 7800 |
| 17... | 1120 | 3580 | 73 | 7.5 | 7.0 | 21 | 8 | 12.0 | 2200 |
| APR | | | | | | | | | |
| 06... | 1140 | 3260 | 70 | 7.4 | 9.6 | 29 | 7 | 12.2 | B360 |
| 20... | 1130 | 3840 | 70 | 7.3 | 9.3 | 33 | 5 | 12.1 | 640 |
| MAY | | | | | | | | | |
| 04... | 1130 | 4060 | 60 | 7.2 | 10.7 | 46 | 9 | 11.3 | B900 |
| 18... | 1130 | 4420 | 58 | 7.5 | 11.0 | 21 | 7 | 12.0 | B140 |
| JUN | | | | | | | | | |
| 02... | 1205 | 3090 | 65 | 7.4 | 11.2 | 23 | 4 | 11.6 | 900 |
| 15... | 1150 | 4210 | 61 | 7.7 | 12.9 | 21 | 6 | 10.9 | 360 |
| JUL | | | | | | | | | |
| 07... | 1130 | 4660 | 54 | 7.4 | 14.7 | 42 | 25 | 10.2 | B480 |
| 20... | 1145 | 4150 | 53 | 7.3 | 13.5 | 46 | 44 | 11.2 | 36000 |
| AUG | | | | | | | | | |
| 03... | 1200 | 3000 | 60 | 7.1 | 14.3 | 92 | 97 | 10.1 | B4000 |
| 17... | 1120 | 2780 | 73 | 7.2 | 13.1 | 46 | 18 | 10.5 | B2200 |
| SEP | | | | | | | | | |
| 08... | 1140 | 1970 | 75 | 7.4 | 12.0 | 54 | 27 | 10.7 | B190000 |
| 28... | 1150 | 1750 | 70 | 7.5 | 14.6 | -- | 25 | 9.4 | 5800 |

B Results based upon colony counts outside the ideal range.

## 12101500 PUYALLUP RIVER AT PUYALLUP, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | FECAL COLI- FORM (COL. PER 100 ML) | HARD- NESS (CA,MG) (MG/L) | NON- CAR- BONATE HARD- NESS (MG/L) | DIS- SOLVED CAL- CIUM (CA) (MG/L) | DIS- SOLVED MAG- NE- SIUM (MG) (MG/L) | DIS- SOLVED SODIUM (NA) (MG/L) | DIS- SOLVED PO- TAS- SIUM (K) (MG/L) | BICAR- BONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 15... | B400 | 28 | 0 | 7.6 | 2.1 | 4.2 | 1.4 | 37 |
| 21... | 400 | 22 | 0 | 6.5 | 1.3 | 3.5 | 1.1 | 28 |
| NOV | | | | | | | | |
| 04... | B60 | 26 | 2 | 8.2 | 1.4 | 2.8 | .6 | 30 |
| 18... | B35 | 25 | 2 | 6.8 | 1.9 | 3.4 | .9 | 28 |
| DEC | | | | | | | | |
| 02... | B250 | 17 | 5 | 4.8 | 1.1 | 2.5 | 1.2 | 14 |
| 16... | 60 | 24 | 2 | 6.7 | 1.7 | 3.5 | 1.0 | 26 |
| JAN | | | | | | | | |
| 13... | 76 | 29 | 3 | 7.5 | 2.4 | 3.2 | 1.1 | 31 |
| 27... | 320 | 22 | 3 | 6.5 | 1.5 | 2.8 | 1.3 | 24 |
| FEB | | | | | | | | |
| 03... | B40 | 25 | 5 | 7.1 | 1.8 | 3.2 | 1.5 | 25 |
| 18... | 620 | 30 | 6 | 8.2 | 2.2 | 3.5 | 1.3 | 29 |
| MAR | | | | | | | | |
| 02... | B10 | 25 | 0 | 7.2 | 1.7 | 3.5 | 1.1 | 30 |
| 17... | B22 | 28 | 3 | 7.4 | 2.3 | 3.6 | .9 | 31 |
| APR | | | | | | | | |
| 06... | B55 | 25 | 1 | 7.1 | 1.8 | 3.3 | .9 | 30 |
| 20... | B100 | 26 | 1 | 6.9 | 2.2 | 3.6 | 1.0 | 31 |
| MAY | | | | | | | | |
| 04... | B26 | 22 | 0 | 6.0 | 1.6 | 3.0 | .8 | 27 |
| 18... | <2 | 22 | 1 | 6.7 | 1.3 | 3.0 | .8 | 26 |
| JUN | | | | | | | | |
| 02... | 8 | 23 | 0 | 6.3 | 1.7 | 3.1 | .7 | 28 |
| 15... | B8 | 20 | 0 | 5.8 | 1.4 | 3.2 | .7 | 26 |
| JUL | | | | | | | | |
| 07... | B140 | 18 | 0 | 5.3 | 1.1 | 2.4 | .7 | 23 |
| 20... | B370 | 17 | 0 | 5.0 | 1.0 | 2.4 | .6 | 20 |
| AUG | | | | | | | | |
| 03... | 230 | 22 | 3 | 6.3 | 1.4 | 2.9 | .8 | 23 |
| 17... | B58 | 24 | 1 | 6.7 | 1.7 | 3.8 | 1.0 | 28 |
| SEP | | | | | | | | |
| 08... | -- | 23 | 0 | 6.3 | 1.8 | 4.6 | .8 | 31 |
| 28... | B92 | 25 | 0 | 7.0 | 1.8 | 3.2 | .8 | 32 |

| DATE | ALKA- LINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DIS- SOLVED SULFATE (SO4) (MG/L) | DIS- SOLVED CHLO- RIDE (CL) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO- GEN (N) (MG/L) | TOTAL PHOS- PHORUS (P) (MG/L) | DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 15... | 30 | 1.5 | 7.3 | 2.6 | -- | .12 | .21 | .14 | .01 |
| 21... | 23 | 1.8 | 6.5 | 1.6 | -- | .16 | .15 | .07 | .01 |
| NOV | | | | | | | | | |
| 04... | 25 | 1.9 | 5.2 | 1.3 | -- | .15 | .08 | .05 | .01 |
| 18... | 23 | 2.2 | 7.7 | 1.9 | -- | .28 | .07 | .07 | .00 |
| DEC | | | | | | | | | |
| 02... | 11 | 1.8 | 5.0 | 1.8 | -- | .23 | .10 | 1.4 | .01 |
| 16... | 21 | 6.6 | 7.4 | 2.2 | -- | .20 | .11 | .06 | .01 |
| JAN | | | | | | | | | |
| 13... | 25 | 2.5 | 4.8 | 3.3 | -- | .31 | .11 | .03 | .02 |
| 27... | 20 | 1.9 | 5.9 | 1.4 | -- | .24 | .16 | .08 | .01 |
| FEB | | | | | | | | | |
| 03... | 21 | 2.5 | 7.8 | 1.4 | -- | .25 | .16 | .04 | .02 |
| 18... | 24 | 3.7 | 5.6 | 2.4 | -- | .29 | .14 | .08 | .02 |
| MAR | | | | | | | | | |
| 02... | 25 | 4.8 | 7.0 | 2.0 | -- | .31 | .12 | .03 | .00 |
| 17... | 25 | 1.6 | 6.7 | 1.9 | -- | .13 | .07 | .05 | .01 |
| APR | | | | | | | | | |
| 06... | 25 | 1.9 | 6.2 | 2.0 | -- | .11 | .08 | .03 | .00 |
| 20... | 25 | 2.5 | 4.4 | 2.1 | -- | .09 | .14 | .04 | .01 |
| MAY | | | | | | | | | |
| 04... | 22 | 2.7 | 4.3 | 1.7 | -- | .06 | .06 | .03 | .00 |
| 18... | 21 | 1.3 | 5.4 | 1.6 | -- | .05 | .06 | .02 | .01 |
| JUN | | | | | | | | | |
| 02... | 23 | 1.8 | 5.6 | 1.7 | -- | .05 | .08 | .02 | .01 |
| 15... | 21 | .8 | 6.6 | 1.9 | -- | .04 | .08 | .02 | .00 |
| JUL | | | | | | | | | |
| 07... | 19 | 1.5 | 5.3 | 1.2 | -- | .03 | .15 | .08 | .01 |
| 20... | 16 | 1.6 | 5.6 | 1.6 | -- | .06 | .22 | .12 | .02 |
| AUG | | | | | | | | | |
| 03... | 19 | 2.9 | 9.1 | 1.5 | -- | .10 | .58 | .29 | .01 |
| 17... | 23 | 2.8 | 8.3 | 1.8 | -- | .10 | .14 | .08 | .01 |
| SEP | | | | | | | | | |
| 08... | 25 | 2.0 | 7.4 | 1.9 | -- | .07 | .16 | .13 | .01 |
| 28... | 26 | 1.6 | 7.0 | 1.5 | -- | .03 | .16 | .14 | .01 |

B Results based upon colony counts outside the ideal range.

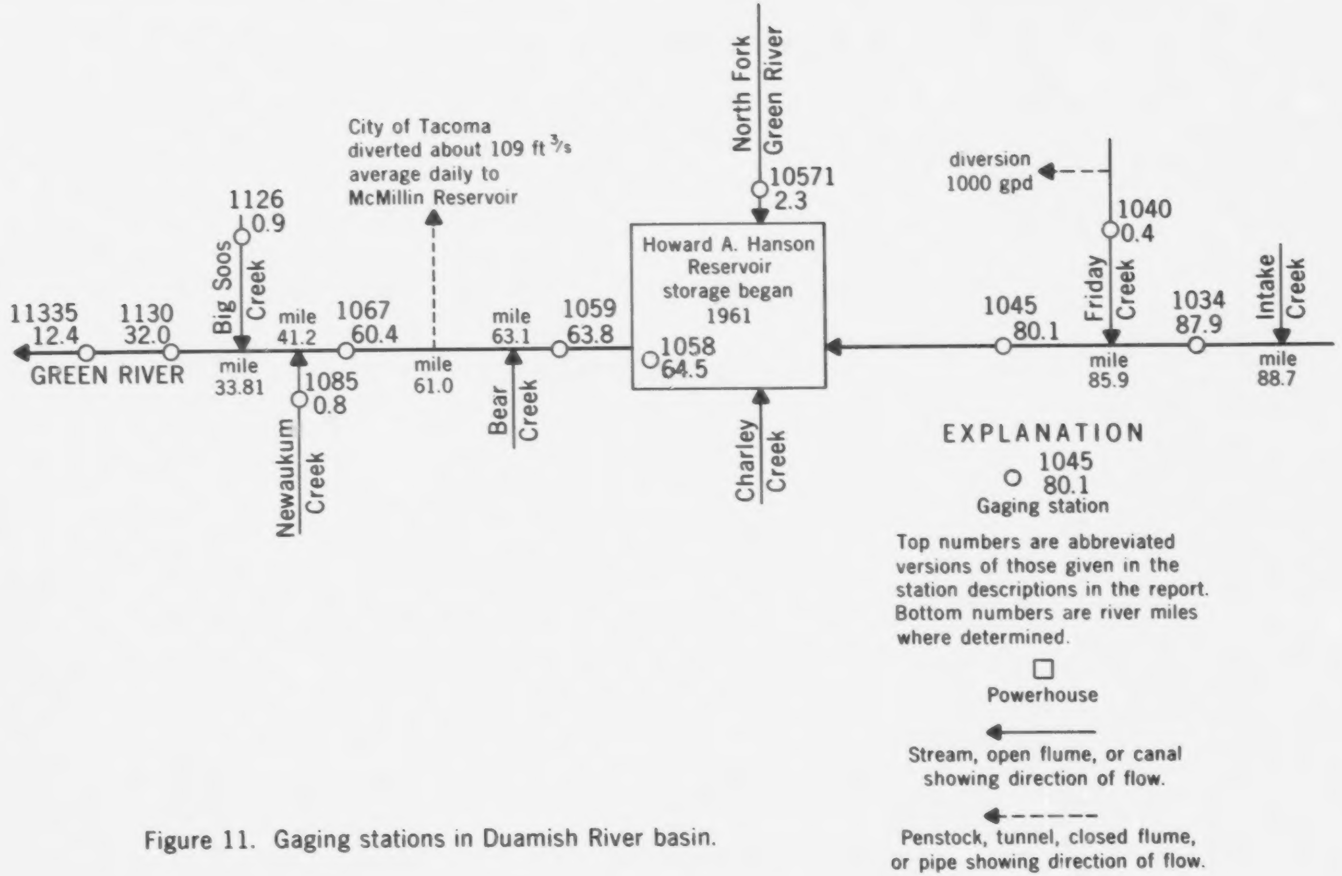
11335
12.4
1130
32.0
GREEN RIVER
1126
0.9
Big Soos Creek
mile 33.81
mile 41.2
1085
0.8
Newaukum Creek
1067
60.4
City of Tacoma diverted about 109 ft³/s average daily to McMillin Reservoir
mile 61.0
mile 63.1
Bear Creek
1059
63.8
1058
64.5
Howard A. Hanson Reservoir storage began 1961
North Fork Green River
10571
2.3
Charley Creek
1045
80.1
diversion 1000 gpd
1040
0.4
Friday Creek
mile 85.9
1034
87.9
Intake Creek
mile 88.7
EXPLANATION
1045
80.1
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 11. Gaging stations in Duamish River basin.

## 12103400 GREEN RIVER BELOW INTAKE CREEK, NEAR LESTER, WA

LOCATION.--Lat 47°12'44", long 121°25'13", in NW¼ sec.21, T.20 N., R.11 E., King County, Hydrologic Unit 17110013, Snoqualmie National Forest, on left bank 0.8 mi (1.3 km) downstream from Intake Creek and 3.3 mi (5.3 km) east of Lester.

DRAINAGE AREA.--34.8 mi² (90.1 km²).

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,800 ft (549 m), from topographic map.

REMARKS.--Records good, except those for periods of no gage-height record, Oct. 15 to Nov. 5 and Mar. 4 to Apr. 6, which are fair, and those above 2,000 ft³/s (56.6 m³/s), which are poor. No regulation or diversion above station.

AVERAGE DISCHARGE.--10 years, 133 ft³/s (3.767 m³/s), 51.90 in/yr (1,318 mm/yr), 96,360 acre-ft/yr (119 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,690 ft³/s (133 m³/s) Dec. 1, 1975, gage height, 6.00 ft (1.829 m), from rating curve extended above 2,000 ft³/s (56.6 m³/s); maximum gage height, 6.05 ft (1.844 m) Dec. 25, 1967; minimum discharge, 9.5 ft³/s (0.27 m³/s) Sept. 22, 1971; minimum gage height, 1.11 ft (0.338 m) Sept. 27-29, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.8 m³/s) and maximum (*) from rating curve extended as explained above:

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 1 | 2300 | *4,690 | 133 | *6.00 | 1.829 | Jan. 16 | 0200 | 1,230 | 34.8 | 4.02 | 1.225 |

Minimum discharge, 15 ft³/s (0.42 m³/s) Sept. 27, 28, 29, gage height, 1.11 ft (0.338 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 22 | 230 | 1750 | 240 | 210 | 59 | 82 | 410 | 151 | 126 | 30 | 38 |
| 2 | 20 | 300 | 2730 | 207 | 200 | 55 | 75 | 624 | 140 | 113 | 29 | 37 |
| 3 | 22 | 400 | 1810 | 177 | 192 | 52 | 73 | 490 | 130 | 104 | 28 | 35 |
| 4 | 29 | 320 | 1490 | 165 | 175 | 49 | 92 | 415 | 122 | 102 | 27 | 34 |
| 5 | 26 | 250 | 774 | 165 | 153 | 48 | 140 | 362 | 117 | 101 | 26 | 34 |
| 6 | 29 | 200 | 435 | 151 | 138 | 48 | 255 | 324 | 113 | 101 | 28 | 39 |
| 7 | 24 | 176 | 330 | 138 | 126 | 47 | 230 | 346 | 118 | 104 | 46 | 41 |
| 8 | 23 | 155 | 370 | 124 | 117 | 47 | 365 | 465 | 151 | 109 | 38 | 34 |
| 9 | 24 | 139 | 430 | 109 | 109 | 50 | 354 | 594 | 182 | 104 | 34 | 32 |
| 10 | 23 | 125 | 398 | 104 | 101 | 56 | 338 | 646 | 207 | 93 | 32 | 32 |
| 11 | 22 | 113 | 330 | 120 | 110 | 68 | 394 | 528 | 202 | 88 | 29 | 30 |
| 12 | 22 | 104 | 270 | 109 | 190 | 64 | 315 | 382 | 185 | 82 | 28 | 30 |
| 13 | 28 | 99 | 230 | 96 | 197 | 60 | 258 | 410 | 167 | 75 | 28 | 28 |
| 14 | 28 | 119 | 205 | 94 | 165 | 57 | 222 | 420 | 151 | 70 | 28 | 28 |
| 15 | 34 | 223 | 200 | 601 | 140 | 54 | 192 | 358 | 147 | 67 | 32 | 27 |
| 16 | 30 | 203 | 185 | 1040 | 134 | 60 | 163 | 346 | 230 | 66 | 38 | 25 |
| 17 | 31 | 165 | 160 | 742 | 126 | 75 | 142 | 354 | 294 | 62 | 37 | 24 |
| 18 | 40 | 141 | 142 | 588 | 115 | 98 | 132 | 300 | 288 | 60 | 40 | 23 |
| 19 | 62 | 123 | 128 | 415 | 106 | 105 | 124 | 255 | 291 | 56 | 41 | 22 |
| 20 | 90 | 113 | 115 | 306 | 98 | 94 | 158 | 222 | 264 | 52 | 88 | 20 |
| 21 | 86 | 104 | 106 | 246 | 90 | 82 | 153 | 205 | 225 | 50 | 77 | 19 |
| 22 | 94 | 99 | 98 | 210 | 85 | 78 | 142 | 205 | 195 | 47 | 69 | 19 |
| 23 | 82 | 139 | 93 | 185 | 82 | 85 | 132 | 202 | 170 | 45 | 63 | 18 |
| 24 | 76 | 381 | 104 | 158 | 81 | 120 | 138 | 202 | 153 | 42 | 60 | 17 |
| 25 | 94 | 370 | 118 | 140 | 78 | 110 | 140 | 202 | 142 | 40 | 60 | 17 |
| 26 | 105 | 438 | 306 | 126 | 72 | 105 | 130 | 200 | 130 | 38 | 56 | 17 |
| 27 | 90 | 365 | 327 | 315 | 68 | 94 | 134 | 240 | 120 | 36 | 51 | 16 |
| 28 | 84 | 266 | 243 | 324 | 67 | 82 | 166 | 252 | 115 | 34 | 48 | 15 |
| 29 | 170 | 206 | 315 | 285 | 62 | 76 | 215 | 222 | 122 | 34 | 45 | 16 |
| 30 | 270 | 179 | 390 | 252 | --- | 72 | 294 | 195 | 132 | 32 | 43 | 17 |
| 31 | 240 | --- | 309 | 225 | --- | 85 | --- | 170 | --- | 31 | 40 | --- |
| TOTAL | 2020 | 6245 | 14891 | 8157 | 3587 | 2235 | 5748 | 10546 | 5154 | 2164 | 1319 | 784 |
| MEAN | 65.2 | 208 | 480 | 263 | 124 | 72.1 | 192 | 340 | 172 | 69.8 | 42.5 | 26.1 |
| MAX | 270 | 438 | 2730 | 1040 | 210 | 120 | 394 | 646 | 294 | 126 | 88 | 41 |
| MIN | 20 | 99 | 93 | 94 | 62 | 47 | 73 | 170 | 113 | 31 | 26 | 15 |
| CFSM | 1.87 | 5.98 | 13.8 | 7.56 | 3.56 | 2.07 | 5.52 | 9.77 | 4.94 | 2.01 | 1.22 | .75 |
| IN. | 2.16 | 6.68 | 15.92 | 8.72 | 3.83 | 2.39 | 6.14 | 11.27 | 5.51 | 2.31 | 1.41 | .84 |
| AC-FT | 4010 | 12390 | 29540 | 16180 | 7110 | 4430 | 11400 | 20920 | 10220 | 4290 | 2620 | 1560 |

CAL YR 1975 TOTAL 65502 MEAN 179 MAX 2730 MIN 20 CFSM 5.14 IN 70.02 AC-FT 129900
WTR YR 1976 TOTAL 62850 MEAN 172 MAX 2730 MIN 15 CFSM 4.94 IN 67.18 AC-FT 124700

## 12104000 FRIDAY CREEK NEAR LESTER, WA

LOCATION.--Lat 47°13'17", long 121°27'22", in SE¼NW¼ sec.18, T.20 N., R.11 E., King County, Hydrologic Unit 17110013, on left bank 0.4 mi (0.6 km) upstream from mouth and 1.9 mi (3.1 km) northeast of Lester.

DRAINAGE AREA.--4.67 m$^2$ (12.10 km$^2$).

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1716: 1957(M), 1959(M). WSP 1932: 1949-50, drainage area.

GAGE.--Water-stage recorder. Concrete control Aug. 9, 1951, to Nov. 22, 1959. Altitude of gage is 1,760 ft (536 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record Nov. 7 to Feb. 3, and those above 230 ft$^3$/s (6.51 m$^3$/s), which are poor. Small diversion above gage of about 1,000 gpd (0.044 l/s) for domestic use. No regulation.

AVERAGE DISCHARGE.--31 years, 27.5 ft$^3$/s (0.779 m$^3$/s), 79.97 in/yr (2,031 mm/yr), 19,920 acre-ft/yr (24.6 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,660 ft$^3$/s (47.0 m$^3$/s) Dec. 1, 1975, gage height, 5.50 ft (1.676 m) from floodmarks, from rating curve extended above 230 ft$^3$/s (6.51 m$^3$/s); minimum, 1.2 ft$^3$/s (0.034 m$^3$/s) Sept. 6, 1958; minimum gage height, 0.82 ft (0.250 m) Sept. 29, 30, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 120 ft$^3$/s (3.40 m$^3$/s) and maximum (*) from high-water marks and from rating curve extended as explained above:

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 1 | about 2200 | *1,660 | 47.0 | *5.50 | 1.676 | May 2 | 0300 | 135 | 3.82 | 2.48 | 0.756 |
| Jan. 15 | ---- | unknown | ---- | unknown | ---- | | | | | | |

Minimum discharge, 3.7 ft$^3$/s (0.10 m$^3$/s) Oct. 1, 2, 3; minimum gage height, 0.82 ft (0.250 m) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.9 | 56 | 560 | 38 | 35 | 8.9 | 12 | 97 | 35 | 21 | 5.7 | 5.9 |
| 2 | 3.7 | 81 | 860 | 33 | 33 | 8.3 | 10 | 121 | 31 | 19 | 5.7 | 5.7 |
| 3 | 4.3 | 95 | 600 | 30 | 31 | 7.8 | 12 | 90 | 29 | 18 | 5.7 | 5.7 |
| 4 | 6.4 | 72 | 450 | 27 | 29 | 7.6 | 19 | 77 | 28 | 18 | 5.3 | 5.5 |
| 5 | 6.2 | 54 | 150 | 25 | 25 | 7.6 | 35 | 75 | 27 | 18 | 5.2 | 5.9 |
| 6 | 5.9 | 42 | 80 | 23 | 22 | 7.8 | 52 | 72 | 30 | 19 | 5.7 | 9.4 |
| 7 | 5.0 | 38 | 55 | 21 | 21 | 7.8 | 44 | 81 | 33 | 20 | 9.4 | 7.8 |
| 8 | 4.8 | 32 | 70 | 20 | 19 | 8.1 | 61 | 98 | 36 | 20 | 6.3 | 6.3 |
| 9 | 5.0 | 27 | 90 | 18 | 17 | 9.4 | 59 | 108 | 38 | 16 | 5.9 | 5.7 |
| 10 | 5.0 | 23 | 70 | 17 | 15 | 13 | 62 | 109 | 38 | 15 | 5.3 | 5.5 |
| 11 | 4.6 | 20 | 55 | 23 | 23 | 12 | 71 | 97 | 35 | 14 | 5.2 | 5.5 |
| 12 | 4.4 | 17 | 45 | 19 | 49 | 9.9 | 58 | 81 | 33 | 13 | 5.0 | 6.5 |
| 13 | 4.4 | 16 | 38 | 17 | 40 | 8.9 | 46 | 86 | 29 | 12 | 4.9 | 5.5 |
| 14 | 4.8 | 19 | 35 | 15 | 32 | 8.3 | 39 | 82 | 27 | 11 | 5.0 | 5.5 |
| 15 | 7.9 | 50 | 32 | 90 | 27 | 8.1 | 34 | 76 | 30 | 10 | 5.3 | 5.5 |
| 16 | 6.2 | 45 | 40 | 240 | 28 | 9.4 | 27 | 87 | 50 | 10 | 5.7 | 5.0 |
| 17 | 6.6 | 35 | 32 | 135 | 26 | 15 | 23 | 80 | 48 | 10 | 5.7 | 5.0 |
| 18 | 9.6 | 29 | 25 | 100 | 24 | 21 | 22 | 64 | 46 | 9.4 | 5.5 | 4.9 |
| 19 | 22 | 24 | 22 | 70 | 21 | 18 | 21 | 58 | 45 | 8.9 | 7.2 | 4.7 |
| 20 | 19 | 20 | 20 | 55 | 18 | 15 | 37 | 53 | 39 | 8.7 | 22 | 4.5 |
| 21 | 19 | 18 | 18 | 42 | 16 | 12 | 33 | 53 | 34 | 8.5 | 12 | 4.4 |
| 22 | 19 | 16 | 16 | 35 | 15 | 13 | 27 | 55 | 29 | 7.8 | 9.9 | 4.4 |
| 23 | 17 | 25 | 14 | 30 | 14 | 12 | 24 | 51 | 25 | 7.2 | 8.9 | 4.5 |
| 24 | 14 | 84 | 17 | 26 | 14 | 15 | 32 | 48 | 24 | 7.0 | 8.5 | 4.4 |
| 25 | 21 | 82 | 22 | 22 | 13 | 15 | 30 | 49 | 24 | 7.0 | 9.4 | 4.4 |
| 26 | 20 | 95 | 62 | 20 | 11 | 12 | 26 | 49 | 22 | 6.8 | 8.1 | 4.2 |
| 27 | 16 | 76 | 68 | 62 | 10 | 10 | 28 | 57 | 21 | 6.5 | 7.4 | 4.1 |
| 28 | 15 | 60 | 40 | 65 | 10 | 9.2 | 40 | 50 | 21 | 6.3 | 7.0 | 4.1 |
| 29 | 43 | 45 | 62 | 55 | 9.4 | 8.3 | 55 | 45 | 22 | 6.1 | 6.6 | 4.1 |
| 30 | 63 | 36 | 85 | 45 | --- | 10 | 74 | 42 | 22 | 6.1 | 6.5 | 3.9 |
| 31 | 53 | --- | 50 | 38 | --- | 16 | --- | 39 | --- | 5.9 | 6.3 | --- |
| TOTAL | 439.7 | 1332 | 3783 | 1456 | 647.4 | 344.4 | 1113 | 2230 | 951 | 366.2 | 222.3 | 158.5 |
| MEAN | 14.2 | 44.4 | 122 | 47.0 | 22.3 | 11.1 | 37.1 | 71.9 | 31.7 | 11.8 | 7.17 | 5.28 |
| MAX | 63 | 95 | 860 | 240 | 49 | 21 | 74 | 121 | 50 | 21 | 22 | 9.4 |
| MIN | 3.7 | 16 | 14 | 15 | 9.4 | 7.6 | 10 | 39 | 21 | 5.9 | 4.9 | 3.9 |
| CFSM | 3.04 | 9.51 | 26.1 | 10.1 | 4.78 | 2.38 | 7.94 | 15.4 | 6.79 | 2.53 | 1.54 | 1.13 |
| IN. | 3.50 | 10.61 | 30.13 | 11.60 | 5.16 | 2.74 | 8.86 | 17.76 | 7.57 | 2.92 | 1.77 | 1.26 |
| AC-FT | 872 | 2640 | 7500 | 2890 | 1280 | 683 | 2210 | 4420 | 1890 | 726 | 441 | 314 |

CAL YR 1975 TOTAL 13801.7 MEAN 37.8 MAX 860 MIN 3.7 CFSM 8.09 IN 109.92 AC-FT 27380
WTR YR 1976 TOTAL 13043.5 MEAN 35.6 MAX 860 MIN 3.7 CFSM 7.62 IN 103.88 AC-FT 25870

## 12104500 GREEN RIVER NEAR LESTER, WA

LOCATION.--Lat 47°12'28", long 121°33'07", in NE¼SE¼ sec.20, T.20 N., R.10 E., King County, Hydrologic Unit 17110013, on left bank 0.4 mi (0.6 km) upstream from Champion Creek, 1.2 mi (1.9 km) downstream from McCain Creek, 2.9 mi (4.7 km) west of Lester, and at mile 80.1 (128.9 km).

DRAINAGE AREA.--96.2 mi$^2$ (249.2 km$^2$).

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1286: 1947(M). WSP 1316: 1948(M). WSP 1932: 1960, drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,480 ft (451 m), from river-profile map. Prior to Nov. 22, 1959, water-stage recorder at site 300 ft (91 m) upstream at different datum (gage destroyed by flood of Nov. 22, 1959), Dec. 28, 1959, to Sept. 21, 1960, nonrecording gage at site 400 ft (122 m) downstream at different datum.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--31 years, 414 ft$^3$/s (11.72 m$^3$/s), 58.44 in/yr (1,484 mm/yr), 299,900 acre-ft/yr (370 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 22,000 ft$^3$/s (623 m$^3$/s) Nov. 22, 1959, gage height, 12.41 ft (3.783 m), from floodmarks, present site and datum, on basis of slope-area measurement of peak flow; minimum, 22 ft$^3$/s (0.62 m$^3$/s) Nov. 20, 1952, Sept. 27, 1967, part or all of each day Oct. 18-20, 23-27, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft$^3$/s (56.6 m$^3$/s) and maximum (*):

| Date | Time | Discharge | | Gage height | | Date | Time | Discharge | | Gage height | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (ft$^3$/s) | (m$^3$/s) | (ft) | (m) | | | (ft$^3$/s) | (m$^3$/s) | (ft) | (m) |
| Nov. 24 | 1800 | 2,090 | 59.2 | 4.94 | 1.506 | Jan. 15 | 2400 | 4,900 | 139 | 6.73 | 2.051 |
| Dec. 2 | 0100 | *12,300 | 348 | *9.53 | 2.905 | May 2 | 0900 | 2,070 | 58.6 | 4.77 | 1.454 |

Minimum discharge, 36 ft$^3$/s (1.02 m$^3$/s) Oct. 2, gage height, 1.35 ft (0.411 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 39 | 615 | 5000 | 726 | 690 | 184 | 271 | 1380 | 420 | 302 | 83 | 99 |
| 2 | 38 | 830 | 9140 | 596 | 640 | 175 | 238 | 1950 | 380 | 275 | 81 | 95 |
| 3 | 42 | 1100 | 6340 | 505 | 602 | 171 | 238 | 1500 | 350 | 250 | 81 | 93 |
| 4 | 62 | 866 | 4620 | 485 | 536 | 162 | 325 | 1250 | 330 | 238 | 78 | 90 |
| 5 | 57 | 704 | 2170 | 515 | 470 | 153 | 552 | 1090 | 320 | 231 | 76 | 90 |
| 6 | 72 | 585 | 1260 | 445 | 425 | 151 | 926 | 996 | 340 | 234 | 79 | 108 |
| 7 | 55 | 518 | 975 | 395 | 385 | 151 | 834 | 1080 | 390 | 242 | 121 | 116 |
| 8 | 51 | 462 | 1220 | 365 | 350 | 151 | 1170 | 1390 | 455 | 267 | 112 | 99 |
| 9 | 48 | 406 | 1370 | 330 | 316 | 159 | 1180 | 1690 | 500 | 234 | 95 | 91 |
| 10 | 54 | 362 | 1160 | 316 | 284 | 191 | 1070 | 1780 | 541 | 208 | 88 | 88 |
| 11 | 49 | 316 | 933 | 400 | 307 | 219 | 1310 | 1470 | 510 | 191 | 83 | 86 |
| 12 | 46 | 284 | 756 | 355 | 651 | 198 | 1070 | 1130 | 465 | 181 | 79 | 90 |
| 13 | 45 | 263 | 640 | 297 | 679 | 188 | 834 | 1160 | 425 | 168 | 79 | 86 |
| 14 | 46 | 354 | 541 | 320 | 569 | 178 | 714 | 1170 | 370 | 162 | 81 | 84 |
| 15 | 78 | 655 | 574 | 2400 | 495 | 171 | 635 | 1010 | 380 | 159 | 88 | 84 |
| 16 | 69 | 605 | 547 | 3860 | 510 | 184 | 525 | 1040 | 624 | 156 | 106 | 81 |
| 17 | 69 | 486 | 480 | 2360 | 510 | 246 | 460 | 1060 | 708 | 153 | 103 | 79 |
| 18 | 91 | 410 | 425 | 1750 | 475 | 355 | 425 | 840 | 684 | 148 | 106 | 78 |
| 19 | 200 | 358 | 375 | 1220 | 415 | 370 | 395 | 732 | 679 | 136 | 101 | 75 |
| 20 | 242 | 319 | 335 | 912 | 365 | 316 | 547 | 635 | 596 | 131 | 227 | 70 |
| 21 | 230 | 288 | 297 | 738 | 320 | 271 | 558 | 602 | 515 | 124 | 194 | 69 |
| 22 | 251 | 267 | 271 | 635 | 288 | 267 | 500 | 618 | 450 | 116 | 171 | 69 |
| 23 | 230 | 474 | 258 | 563 | 275 | 267 | 445 | 613 | 390 | 112 | 162 | 69 |
| 24 | 197 | 1540 | 320 | 495 | 271 | 330 | 485 | 585 | 350 | 108 | 151 | 69 |
| 25 | 242 | 1340 | 405 | 445 | 258 | 330 | 505 | 585 | 330 | 103 | 153 | 66 |
| 26 | 291 | 1640 | 1320 | 410 | 234 | 288 | 465 | 569 | 297 | 99 | 145 | 65 |
| 27 | 242 | 1310 | 1310 | 1300 | 223 | 263 | 460 | 690 | 271 | 95 | 131 | 63 |
| 28 | 224 | 860 | 884 | 1230 | 212 | 242 | 574 | 690 | 275 | 91 | 121 | 62 |
| 29 | 474 | 645 | 1010 | 1010 | 194 | 216 | 732 | 602 | 311 | 90 | 114 | 62 |
| 30 | 740 | 580 | 1270 | 846 | --- | 212 | 1010 | 541 | 311 | 88 | 108 | 61 |
| 31 | 645 | --- | 940 | 750 | --- | 293 | --- | 475 | --- | 84 | 103 | --- |
| TOTAL | 5219 | 19442 | 47146 | 26974 | 11949 | 7052 | 19453 | 30923 | 12967 | 5176 | 3500 | 2437 |
| MEAN | 168 | 648 | 1521 | 870 | 412 | 227 | 648 | 998 | 432 | 167 | 113 | 81.2 |
| MAX | 740 | 1640 | 9140 | 3860 | 690 | 370 | 1310 | 1950 | 708 | 302 | 227 | 116 |
| MIN | 38 | 263 | 258 | 297 | 194 | 151 | 238 | 475 | 271 | 84 | 76 | 61 |
| CFSM | 1.75 | 6.74 | 15.8 | 9.04 | 4.28 | 2.36 | 6.74 | 10.4 | 4.49 | 1.74 | 1.17 | .84 |
| IN. | 2.02 | 7.52 | 18.23 | 10.43 | 4.62 | 2.73 | 7.52 | 11.96 | 5.01 | 2.00 | 1.35 | .94 |
| AC-FT | 10350 | 38560 | 93510 | 53500 | 23700 | 13990 | 38590 | 61340 | 25720 | 10270 | 6940 | 4830 |

CAL YR 1975 TOTAL 192724 MEAN 528 MAX 9140 MIN 38 CFSM 5.49 IN 74.52 AC-FT 382300
WTR YR 1976 TOTAL 192238 MEAN 525 MAX 9140 MIN 38 CFSM 5.46 IN 74.34 AC-FT 381300

## 12105710 NORTH FORK GREEN RIVER NEAR LEMOLO, WA

LOCATION.--Lat 47°18'21", long 121°46'20", near line between SW¼ and SE¼ sec.15, T.21 N., R.8 E., King County, 17110013. on left bank 1.8 mi (2.9 km) northeast of Lemolo siding, 5.5 mi (8.8 km) east of Palmer, and at mile 2.3 (3.7 km).

DRAINAGE AREA.--16.7 mi$^2$ (43.3 km$^2$).

PERIOD OF RECORD.--June 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,250 ft (381 m), from topographic map.

REMARKS.--Records poor. No regulation or diversion above station. Considerable water goes underground a short distance above the gage and, at times during dry summers, the streambed at the gage may become completely dry.

AVERAGE DISCHARGE.--11 years, 91.8 ft$^3$/s (2.600 m$^3$/s), 74.65 in/yr (1,896 mm/yr) 66,510 acre-ft/yr (82.0 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,010 ft$^3$/s (56.9 m$^3$/s) Dec. 2, 1975, gage height, 8.29 ft (2.527 m); no flow Aug. 8, 9, 18, Sept. 5-13, 1965.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 28, 1965 reached a stage of 9.50 ft (2.896 m) from floodmarks, discharge, 2,370 ft$^3$/s (67.1 m$^3$/s) by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft$^3$/s (14.2 m$^3$/s) and maximum (*) from high-water mark in well:

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 2 | unknown | *2,010 | 56.9 | *8.29 | 2.527 | Jan. 15 | unknown | unknown | --- | unknown | --- |

Minimum discharge, 6.0 ft$^3$/s (0.170 m$^3$/s) Oct. 1, 2, 3, gage height, 3.37 ft (1.027 m).

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.2 | 220 | 1500 | 130 | 100 | 39 | 68 | 264 | 53 | 39 | 10 | 16 |
| 2 | 6.0 | 340 | 1650 | 105 | 90 | 38 | 63 | 297 | 52 | 33 | 10 | 15 |
| 3 | 8.3 | 300 | 1200 | 82 | 80 | 37 | 64 | 217 | 47 | 29 | 10 | 14 |
| 4 | 13 | 220 | 680 | 140 | 70 | 36 | 74 | 183 | 45 | 30 | 9.6 | 13 |
| 5 | 16 | 170 | 350 | 210 | 60 | 34 | 108 | 178 | 43 | 26 | 9.6 | 19 |
| 6 | 18 | 140 | 170 | 135 | 52 | 33 | 172 | 153 | 46 | 23 | 10 | 41 |
| 7 | 11 | 120 | 160 | 105 | 49 | 33 | 172 | 160 | 45 | 24 | 30 | 37 |
| 8 | 11 | 110 | 270 | 115 | 45 | 33 | 240 | 178 | 46 | 49 | 23 | 26 |
| 9 | 13 | 92 | 235 | 96 | 41 | 34 | 210 | 183 | 45 | 36 | 16 | 20 |
| 10 | 14 | 76 | 185 | 100 | 38 | 45 | 225 | 174 | 46 | 32 | 14 | 18 |
| 11 | 10 | 64 | 135 | 120 | 43 | 45 | 249 | 146 | 41 | 30 | 12 | 17 |
| 12 | 9.4 | 58 | 100 | 90 | 88 | 41 | 190 | 128 | 49 | 30 | 11 | 26 |
| 13 | 9.1 | 84 | 82 | 74 | 67 | 38 | 155 | 128 | 45 | 26 | 12 | 21 |
| 14 | 9.7 | 200 | 72 | 250 | 60 | 37 | 130 | 113 | 37 | 23 | 12 | 21 |
| 15 | 25 | 260 | 110 | 1300 | 57 | 36 | 117 | 108 | 47 | 21 | 18 | 21 |
| 16 | 18 | 170 | 92 | 650 | 111 | 39 | 98 | 119 | 149 | 20 | 21 | 19 |
| 17 | 23 | 130 | 78 | 350 | 115 | 56 | 92 | 104 | 103 | 19 | 17 | 18 |
| 18 | 41 | 100 | 68 | 260 | 108 | 77 | 92 | 88 | 82 | 18 | 19 | 17 |
| 19 | 79 | 76 | 62 | 200 | 90 | 71 | 88 | 82 | 70 | 17 | 18 | 16 |
| 20 | 69 | 66 | 56 | 150 | 77 | 66 | 165 | 76 | 60 | 16 | 70 | 14 |
| 21 | 74 | 58 | 50 | 110 | 67 | 59 | 132 | 74 | 53 | 16 | 46 | 14 |
| 22 | 88 | 56 | 47 | 98 | 60 | 63 | 115 | 71 | 49 | 16 | 36 | 14 |
| 23 | 75 | 260 | 54 | 94 | 59 | 61 | 103 | 63 | 45 | 14 | 30 | 15 |
| 24 | 60 | 420 | 120 | 84 | 59 | 110 | 132 | 66 | 47 | 14 | 26 | 14 |
| 25 | 154 | 270 | 160 | 74 | 56 | 96 | 117 | 68 | 45 | 13 | 34 | 13 |
| 26 | 150 | 360 | 410 | 70 | 50 | 82 | 104 | 64 | 39 | 13 | 28 | 12 |
| 27 | 107 | 220 | 310 | 290 | 47 | 73 | 103 | 68 | 34 | .13 | 24 | 12 |
| 28 | 106 | 150 | 190 | 230 | 45 | 68 | 115 | 60 | 32 | 12 | 21 | 11 |
| 29 | 289 | 110 | 280 | 180 | 41 | 59 | 144 | 60 | 30 | 11 | 19 | 11 |
| 30 | 354 | 450 | 225 | 140 | --- | 66 | 202 | 64 | 32 | 11 | 17 | 11 |
| 31 | 217 | --- | 180 | 115 | --- | 82 | --- | 56 | --- | 10 | 16 | --- |
| TOTAL | 2083.7 | 5350 | 9281 | 6147 | 1925 | 1687 | 4039 | 3793 | 1557 | 684 | 649.2 | 536 |
| MEAN | 67.2 | 178 | 299 | 198 | 66.4 | 54.4 | 135 | 122 | 51.9 | 22.1 | 20.9 | 17.9 |
| MAX | 354 | 450 | 1650 | 1300 | 115 | 110 | 249 | 297 | 149 | 49 | 70 | 41 |
| MIN | 6.0 | 56 | 47 | 70 | 38 | 33 | 63 | 56 | 30 | 10 | 9.6 | 11 |
| CFSM | 4.02 | 10.7 | 17.9 | 11.9 | 3.98 | 3.26 | 8.08 | 7.31 | 3.11 | 1.32 | 1.25 | 1.07 |
| IN. | 4.64 | 11.92 | 20.67 | 13.69 | 4.29 | 3.76 | 9.00 | 8.45 | 3.47 | 1.52 | 1.45 | 1.19 |
| AC-FT | 4130 | 10[illegible]10 | 18410 | 12190 | 3820 | 3350 | 8010 | 7520 | 3090 | 1360 | 1290 | 1060 |

CAL YR 1975 TOTAL 42609.3 MEAN 117 MAX 1650 MIN 4.8 CFSM 7.01 IN 94.91 AC-FT 84520
WTR YR 1976 TOTAL 37731.9 MEAN 103 MAX 1650 MIN 6.0 CFSM 6.17 IN 84.04 AC-FT 74840

NOTE.--No gage-height record Nov. 1 to Feb. 5.

## 12105800 HOWARD A. HANSON RESERVOIR NEAR PALMER, WA

LOCATION.--Lat 47°16'38", long 121°47'03", in NE¼SE¼ sec.28, T.21 N., R.8 E., King County, Hydrologic Unit 17110013, near left bank on outlet gate structure just upstream from Howard A. Hanson Dam on Green River, 1.4 mi (2.3 km) upstream from Bear Creek , 5.1 mi (8.2 km) southeast of Palmer, and at mile 64.5 (103.8 km).

DRAINAGE AREA.--220 mi² (570 km²) approximately.

PERIOD OF RECORD.--December 1961 to current year.

GAGE.--Nonrecording gage. Datum of gage is at mean sea level. Supplementary long-distance water-stage recorder on right bank at same datum.

REMARKS.--Reservoir is formed by earth-fill dam; completed Mar. 31, 1962; storage began Dec. 5, 1961. Capacity 105,650 acre-ft (310 hm³) between elevations 1,035 ft (315.5 m), invert of outlet tunnel, and 1,206 ft (367.6 m), top of spillway gates. Storage is not retained but is dissipated as soon after a flood as is possible without creating damaging flows downstream in order to have the maximum capacity available for any following flood which might develop.

COOPERATION.--Record of reservoir elevations and capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 61,325 acre-ft (75.6 hm³) Dec. 5, 1975, elevation, 1,175.8 ft (358.38 m); minimum observed, 34 acre-ft (41,900 hm³) Nov. 2, 1962, elevation, 1,037.6 ft (316.26 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 61,325 acre-ft (75.6 hm³) Dec. 5, elevation, 1,175.8 ft (358.38 m); minimum observed, 289 acre-ft (0.356 hm³) Jan. 29. elevation, 1,050.0 ft (320.04 m).

Capacity table (elevation, in feet, and total contents, in acre-feet)
(Based on photogrametric maps by Fairchild Aerial Surveys in 1961)

| | | | | | |
|---|---|---|---|---|---|
| 1,045 | 153 | 1,080 | 2,800 | 1,140 | 24,887 |
| 1,050 | 289 | 1,090 | 4,550 | 1,150 | 33,301 |
| 1,055 | 493 | 1,100 | 6,893 | 1,160 | 43,092 |
| 1,060 | 770 | 1,110 | 9,715 | 1,170 | 54,326 |
| 1,065 | 1,130 | 1,120 | 13,386 | 1,180 | 66,591 |
| 1,070 | 1,590 | 1,130 | 18,362 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8230 | 6692 | 4207 | 1451 | 493 | 513 | 503 | 883 | 16834 | 22074 | 19967 | 18594 |
| 2 | 8090 | 3305 | 27981 | 896 | 400 | 563 | 475 | 1734 | 17912 | 22141 | 19845 | 18710 |
| 3 | 7979 | 2264 | 47099 | 1303 | 527 | 537 | 605 | 2191 | 18884 | 21943 | 19661 | 18826 |
| 4 | 7951 | 946 | 59364 | 1413 | 479 | 552 | 776 | 1451 | 19723 | 21746 | 19420 | 18942 |
| 5 | 7951 | 998 | 61325 | 2673 | 513 | 537 | 1124 | 673 | 20653 | 21484 | 19300 | 19061 |
| 6 | 8063 | 758 | 53268 | 1321 | 430 | 503 | 910 | 822 | 21227 | 21163 | 19300 | 19300 |
| 7 | 8118 | 883 | 39802 | 1339 | 563 | 475 | 758 | 822 | 22141 | 21227 | 19420 | 19723 |
| 8 | 8090 | 1132 | 30883 | 1451 | 513 | 461 | 917 | 770 | 23092 | 21812 | 19784 | 19479 |
| 9 | 8063 | 1216 | 16060 | 1422 | 434 | 542 | 667 | 1166 | 24150 | 21812 | 19967 | 18826 |
| 10 | 8118 | 1021 | 16060 | 1348 | 563 | 547 | 1059 | 1489 | 25344 | 22008 | 19360 | 18025 |
| 11 | 8118 | 849 | 9591 | 1548 | 542 | 639 | 1670 | 396 | 26595 | 22074 | 18826 | 17151 |
| 12 | 8063 | 783 | 4554 | 1702 | 953 | 488 | 1898 | 452 | 27405 | 22141 | 18710 | 16263 |
| 13 | 8035 | 809 | 1558 | 1242 | 809 | 616 | 673 | 547 | 27079 | 22141 | 18652 | 15460 |
| 14 | 7951 | 1199 | 1489 | 1339 | 783 | 673 | 452 | 758 | 26918 | 21484 | 18536 | 14879 |
| 15 | 8035 | 1067 | 1489 | 2366 | 594 | 673 | 573 | 616 | 25884 | 21163 | 18420 | 14549 |
| 16 | 8174 | 1798 | 1629 | 12596 | 733 | 552 | 594 | 589 | 26356 | 21163 | 18478 | 14364 |
| 17 | 8344 | 1588 | 1191 | 15411 | 1059 | 578 | 739 | 714 | 25649 | 21098 | 18362 | 14181 |
| 18 | 8573 | 876 | 1157 | 11966 | 645 | 822 | 745 | 537 | 25573 | 21034 | 18362 | 14046 |
| 19 | 8895 | 727 | 1108 | 6149 | 537 | 684 | 661 | 667 | 24887 | 20906 | 18362 | 13911 |
| 20 | 9474 | 783 | 1451 | 2888 | 589 | 684 | 932 | 568 | 24007 | 20778 | 18362 | 13734 |
| 21 | 9345 | 783 | 1629 | 1149 | 903 | 708 | 644 | 1059 | 22815 | 20715 | 18768 | 13604 |
| 22 | 8895 | 783 | 1629 | 1339 | 953 | 605 | 690 | 2315 | 22410 | 20653 | 18768 | 13560 |
| 23 | 8806 | 975 | 1108 | 1149 | 876 | 627 | 475 | 3539 | 22410 | 20590 | 19181 | 13473 |
| 24 | 8544 | 3973 | 1348 | 1629 | 547 | 862 | 727 | 4597 | 22477 | 20590 | 19539 | 13386 |
| 25 | 7814 | 3861 | 1216 | 1887 | 661 | 667 | 932 | 5884 | 22477 | 20527 | 19967 | 13006 |
| 26 | 9194 | 2715 | 3240 | 1865 | 622 | 417 | 917 | 7464 | 22477 | 20464 | 20402 | 12555 |
| 27 | 10731 | 3161 | 3224 | 503 | 558 | 684 | 605 | 9103 | 22276 | 20402 | 20778 | 12120 |
| 28 | 11477 | 1432 | 2203 | 527 | 644 | 696 | 610 | 10974 | 22008 | 20402 | 20527 | 11080 |
| 29 | 10629 | 1598 | 1990 | 289 | 594 | 600 | 654 | 12678 | 22008 | 20339 | 19967 | 9560 |
| 30 | 11224 | 1312 | 2191 | 493 | --- | 465 | 739 | 14271 | 22008 | 20276 | 19420 | 7951 |
| 31 | 10629 | --- | 1629 | 644 | --- | 673 | --- | 15559 | --- | 20151 | 18652 | --- |
| MAX | 11477 | 6692 | 61325 | 15411 | 1059 | 862 | 1898 | 15559 | 27405 | 22141 | 20778 | 19723 |
| MIN | 7814 | 727 | 1108 | 289 | 400 | 417 | 452 | 396 | 16834 | 20151 | 18362 | 7951 |
| †† | 1,104.3 | 1,080.4 | 1,069.3 | 1,056.1 | 1,056.0 | 1,056.4 | 1,060.9 | 1,126.3 | 1,136.0 | 1,132.8 | 1,130.4 | 1,100.1 |
| † | 8,035 | 2,858 | 1,519 | 547 | 542 | 563 | 828 | 16,366 | 22,074 | 20,029 | 18,594 | 6,919 |
| ‡ | -225 | -5,177 | -1,339 | -972 | -5 | +21 | +265 | +15,538 | +5,708 | -2,045 | -1,435 | -11,675 |

CAL YR 1975.............. ‡ +1,058
WTR YR 1976.............. ‡ -1,341

†† Monthend estimated elevation, in feet, at 2400 hours.
† Monthend estimated contents, in acre-feet.
‡ Change in contents, in acre-feet.

NOTE.--Contents, in acre-feet, usually at 0900 hours.

## 12105900 GREEN RIVER BELOW HOWARD A. HANSON DAM, WA

LOCATION.--Lat 47°17'02", long 121°47'48", in NE¼NW¼ sec.28, T.21 N., R.8 E., King County, Hydrologic Unit 17110013, on right bank 0.7 mi (1.1 km) upstream from Bear Creek, 0.7 mi (1.1 km) downstream from Howard A. Hanson Dam, 5.0 mi (8.0 km) southeast of Palmer, and at mile 63.8 (102.7 km).

DRAINAGE AREA.--221 mi² (572 km²).

PERIOD OF RECORD.--October 1960 (monthly discharge only), November 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 990 ft (302 m), from topographic map.

REMARKS.--Records good. Flow regulated by Howard A. Hanson Reservoir (see sta 12105800) for flood control and during summer months to augment the natural river flow. Minor diversions on upstream tributaries for domestic use.

AVERAGE DISCHARGE.--16 years, 1,096 ft³/s (31.04 m³/s) 67.35 in/yr (1,711 mm/yr), 794,100 acre-ft/yr (979 hm³/yr), adjusted for storage in Howard A. Hanson Reservoir since December 1961.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,200 ft³/s (346 m³/s) Feb. 21, 1961, gage height, 14.40 ft (4.389 m); minimum, 87 ft³/s (2.46 m³/s) Dec. 29, 1961, gage height, 3.49 ft (1.064 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,700 ft³/s (303 m³/s) Dec. 6, gage height, 13.84 ft (4.218 m); minimum, 206 ft³/s (5.83 m³/s) Aug. 22, 23, gage height, 4.09 ft (1.247 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 222 | 4310 | 4980 | 2330 | 1780 | 735 | 975 | 2490 | 296 | 605 | 322 | 229 |
| 2 | 222 | 3610 | 8580 | 1720 | 1560 | 690 | 865 | 3030 | 298 | 637 | 322 | 231 |
| 3 | 222 | 3500 | 8390 | 1490 | 1530 | 658 | 795 | 3120 | 301 | 658 | 347 | 231 |
| 4 | 222 | 2660 | 8370 | 1540 | 1350 | 625 | 840 | 2850 | 303 | 658 | 319 | 231 |
| 5 | 223 | 1950 | 9580 | 2320 | 1230 | 621 | 1340 | 2230 | 306 | 654 | 257 | 231 |
| 6 | 222 | 1670 | 10000 | 2160 | 1090 | 613 | 1940 | 2000 | 306 | 545 | 236 | 233 |
| 7 | 222 | 1450 | 8890 | 1600 | 1040 | 605 | 1910 | 2120 | 309 | 462 | 236 | 399 |
| 8 | 222 | 1290 | 8440 | 1660 | 1000 | 573 | 2380 | 2360 | 311 | 462 | 236 | 617 |
| 9 | 222 | 1300 | 8060 | 1520 | 905 | 597 | 2350 | 2680 | 311 | 462 | 411 | 690 |
| 10 | 222 | 1190 | 7130 | 1580 | 855 | 690 | 2080 | 3440 | 314 | 462 | 549 | 744 |
| 11 | 222 | 1010 | 5610 | 1650 | 880 | 825 | 2350 | 2660 | 402 | 462 | 399 | 758 |
| 12 | 222 | 872 | 4140 | 1790 | 1490 | 721 | 2730 | 2200 | 835 | 462 | 277 | 748 |
| 13 | 222 | 831 | 2370 | 1430 | 1510 | 645 | 2120 | 2090 | 910 | 617 | 303 | 667 |
| 14 | 221 | 1370 | 1700 | 1930 | 1420 | 663 | 1640 | 2160 | 1050 | 676 | 319 | 529 |
| 15 | 222 | 1740 | 1720 | 4700 | 1310 | 703 | 1530 | 1980 | 970 | 448 | 319 | 414 |
| 16 | 222 | 1920 | 1960 | 6540 | 1430 | 703 | 1260 | 1890 | 1390 | 411 | 353 | 378 |
| 17 | 223 | 1940 | 1690 | 7150 | 1890 | 753 | 1190 | 1980 | 1630 | 411 | 339 | 350 |
| 18 | 225 | 1400 | 1460 | 7390 | 1790 | 1030 | 1170 | 1630 | 1530 | 408 | 314 | 350 |
| 19 | 228 | 1080 | 1190 | 5680 | 1440 | 1070 | 1140 | 1470 | 1630 | 408 | 350 | 347 |
| 20 | 655 | 1020 | 1010 | 3680 | 1190 | 955 | 1550 | 1180 | 1620 | 393 | 469 | 328 |
| 21 | 970 | 685 | 1030 | 2400 | 1030 | 955 | 1630 | 717 | 1340 | 367 | 557 | 296 |
| 22 | 882 | 874 | 1250 | 1770 | 1040 | 945 | 1440 | 483 | 930 | 339 | 420 | 280 |
| 23 | 829 | 914 | 1040 | 1630 | 1120 | 930 | 1220 | 525 | 735 | 311 | 224 | 280 |
| 24 | 916 | 2980 | 1290 | 1290 | 1000 | 1340 | 1250 | 493 | 694 | 325 | 226 | 367 |
| 25 | 782 | 4430 | 1500 | 1330 | 955 | 1400 | 1340 | 350 | 694 | 322 | 219 | 444 |
| 26 | 592 | 4250 | 3320 | 1530 | 940 | 1100 | 1420 | 250 | 694 | 301 | 222 | 441 |
| 27 | 605 | 4380 | 4690 | 3760 | 850 | 1000 | 1270 | 260 | 690 | 285 | 336 | 585 |
| 28 | 1210 | 2900 | 3150 | 3110 | 835 | 1000 | 1340 | 272 | 645 | 285 | 617 | 935 |
| 29 | 2690 | 1990 | 3220 | 2530 | 810 | 960 | 1620 | 280 | 609 | 285 | 617 | 1010 |
| 30 | 3700 | 1940 | 3630 | 2090 | --- | 875 | 2060 | 288 | 609 | 309 | 654 | 1020 |
| 31 | 4210 | --- | 2950 | 1960 | --- | 1000 | --- | 293 | --- | 322 | 497 | --- |
| TOTAL | 22269 | 61606 | 132340 | 83260 | 35270 | 25980 | 46745 | 49771 | 22662 | 13752 | 11266 | 14363 |
| MEAN | 718 | 2054 | 4269 | 2686 | 1216 | 838 | 1558 | 1606 | 755 | 444 | 363 | 479 |
| MAX | 4210 | 4430 | 10000 | 7390 | 1890 | 1400 | 2730 | 3440 | 1630 | 676 | 654 | 1020 |
| MIN | 221 | 824 | 1010 | 1290 | 810 | 573 | 795 | 250 | 296 | 285 | 219 | 229 |
| AC-FT | 44170 | 122200 | 262500 | 165100 | 69960 | 51530 | 92720 | 98720 | 44950 | 27280 | 22350 | 28490 |
| † | -225 | -5,177 | -1,339 | -972 | -5 | +21 | +265 | +15,538 | +5,708 | -2,045 | -1,435 | -11,675 |
| MEAN‡ | 714 | 1,967 | 4,247 | 2,668 | 1,216 | 838 | 1,563 | 1,859 | 852 | 410 | 340 | 283 |
| CFSM‡ | 3.23 | 8.90 | 19.2 | 12.1 | 5.50 | 3.79 | 7.07 | 8.41 | 3.86 | 1.86 | 1.54 | 1.28 |
| IN.‡ | 3.73 | 9.93 | 22.16 | 13.92 | 5.94 | 4.37 | 7.89 | 9.70 | 4.30 | 2.14 | 1.77 | 1.43 |
| AC-FT‡ | 43,940 | 117,000 | 261,200 | 164,100 | 69,960 | 51,550 | 92,980 | 114,300 | 50,660 | 25,240 | 20,920 | 16,820 |

CAL YR 1975: TOTAL 533,870 MEAN 1,463 MAX 10,000 MIN 217 AC-FT 1,059,000
DO......: MEAN‡ 1,464 CFSM‡ 6.62 IN.‡ 89.93 AC-FT‡ 1,060,000
WTR YR 1976: TOTAL 519,284 MEAN 1,419 MAX 10,000 MIN 219 AC-FT 1,030,000
DO......: MEAN‡ 1,417 CFSM‡ 6.41 IN.‡ 87.30 AC-FT‡ 1,029,000

† Change in contents, in acre-feet, in Howard A. Hanson Reservoir.
‡ Adjusted for change in contents, in Howard A. Hanson Reseroir.

## 12106700 GREEN RIVER AT PURIFICATION PLANT, NEAR PALMER, WA

LOCATION.--Lat 47°18'19", long 121°50'58", in NE¼SE¼ sec.13, T.21 N., R.7 E., King County, Hydrologic Unit 17110013, on left bank at city of Tacoma purification plant, 0.6 mi (1.0 km), downstream from diversion dam, 2 mi (3.2 km) southeast of Palmer, and at mile 60.4 (97.2 km).

DRAINAGE AREA.--231 mi² (598 km²).

PERIOD OF RECORD.--July 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 859.53 ft (261.985 m) above mean sea level.

REMARKS.--Records excellent. Since Dec. 5, 1961, flow regulated by Howard A. Hanson Reservoir (see sta 12105800), 4.1 mi (6.6 km) upstream for flood control and during summer months to augment the natural river flow. City of Tacoma diverted an average daily discharge of about 109 ft³/s (3.09 m³/s) above station for municipal supply. Minor diversions on upstream tributaries for domestic use.

AVERAGE DISCHARGE.--13 years, 1,091 ft³/s (30.90 m³/s), 790,400 acre-ft/yr (975 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,200 ft³/s (317 m³/s) Dec. 6, 1975, gage height, 11.62 ft (3.542); minimum, 20 ft³/s (0.566 m³/s) part or all of each day Oct. 26, 27, Nov. 3-6, 1974, gage height, 3.99 ft (1.216 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 23, 1959, had a discharge of 27,800 ft³/s (787 m³/s), by slope-area measurement at site 0.6 mi (1.0 km) downstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,200 ft³/s (317 m³/s), Dec. 6, gage height, 11.62 ft (3.542 m); minimum, 128 ft³/s (3.62 m³/s) Aug. 24; minimum gage height, 4.62 ft (1.408 m), Oct. 1-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 144 | 4850 | 5720 | 2360 | 1760 | 673 | 946 | 2480 | 207 | 562 | 219 | 136 |
| 2 | 142 | 3960 | 10400 | 1750 | 1530 | 603 | 813 | 3070 | 215 | 596 | 215 | 136 |
| 3 | 147 | 3740 | 9910 | 1450 | 1500 | 589 | 736 | 3200 | 215 | 624 | 239 | 133 |
| 4 | 150 | 2760 | 9460 | 1580 | 1310 | 542 | 785 | 2880 | 215 | 617 | 223 | 133 |
| 5 | 156 | 1940 | 10300 | 2440 | 1190 | 529 | 1310 | 2290 | 215 | 610 | 154 | 145 |
| 6 | 156 | 1660 | 10400 | 2210 | 1040 | 523 | 1940 | 2000 | 215 | 484 | 133 | 160 |
| 7 | 150 | 1440 | 9520 | 1610 | 986 | 516 | 1920 | 2130 | 215 | 385 | 148 | 352 |
| 8 | 147 | 1270 | 9130 | 1690 | 954 | 477 | 2330 | 2370 | 215 | 409 | 145 | 596 |
| 9 | 156 | 1280 | 8620 | 1560 | 834 | 497 | 2410 | 2710 | 215 | 397 | 300 | 673 |
| 10 | 158 | 1190 | 7550 | 1600 | 785 | 624 | 2050 | 3460 | 219 | 397 | 484 | 729 |
| 11 | 153 | 999 | 5920 | 1720 | 806 | 764 | 2350 | 2640 | 295 | 391 | 315 | 743 |
| 12 | 150 | 845 | 4300 | 1790 | 1490 | 659 | 2740 | 2130 | 792 | 391 | 177 | 736 |
| 13 | 150 | 790 | 2420 | 1440 | 1510 | 562 | 2130 | 2010 | 907 | 575 | 199 | 645 |
| 14 | 147 | 1350 | 1680 | 2020 | 1390 | 575 | 1600 | 2070 | 1040 | 659 | 219 | 484 |
| 15 | 158 | 1800 | 1760 | 5570 | 1270 | 617 | 1530 | 1900 | 1000 | 379 | 227 | 346 |
| 16 | 158 | 1950 | 1980 | 7250 | 1480 | 624 | 1230 | 1820 | 1490 | 325 | 257 | 305 |
| 17 | 164 | 1970 | 1700 | 7570 | 1920 | 708 | 1140 | 1910 | 1730 | 325 | 253 | 266 |
| 18 | 188 | 1400 | 1450 | 7750 | 1870 | 994 | 1140 | 1570 | 1560 | 320 | 219 | 266 |
| 19 | 188 | 1070 | 1170 | 6000 | 1480 | 1060 | 1110 | 1410 | 1650 | 320 | 253 | 262 |
| 20 | 553 | 992 | 978 | 3840 | 1190 | 915 | 1570 | 1110 | 1630 | 300 | 427 | 244 |
| 21 | 929 | 866 | 994 | 2510 | 1020 | 930 | 1660 | 638 | 1390 | 271 | 536 | 207 |
| 22 | 873 | 790 | 1230 | 1720 | 1030 | 930 | 1430 | 415 | 946 | 244 | 397 | 188 |
| 23 | 803 | 915 | 1010 | 1630 | 1060 | 915 | 1200 | 471 | 729 | 211 | 142 | 184 |
| 24 | 866 | 2990 | 1270 | 1240 | 994 | 1360 | 1240 | 439 | 687 | 219 | 142 | 266 |
| 25 | 859 | 4930 | 1520 | 1280 | 930 | 1410 | 1330 | 271 | 680 | 219 | 136 | 368 |
| 26 | 649 | 4700 | 3210 | 1500 | 892 | 1110 | 1410 | 157 | 673 | 199 | 133 | 363 |
| 27 | 614 | 4930 | 5100 | 3910 | 806 | 986 | 1240 | 167 | 673 | 181 | 207 | 516 |
| 28 | 1080 | 3130 | 3280 | 3330 | 778 | 986 | 1310 | 174 | 610 | 181 | 555 | 915 |
| 29 | 2760 | 1950 | 3330 | 2640 | 757 | 930 | 1570 | 188 | 562 | 181 | 555 | 1000 |
| 30 | 4120 | 1990 | 3870 | 2130 | --- | 834 | 2020 | 203 | 568 | 203 | 603 | 1020 |
| 31 | 4660 | --- | 3130 | 1970 | --- | 978 | --- | 203 | --- | 219 | 458 | --- |
| TOTAL | 21728 | 64447 | 142312 | 87060 | 34582 | 24420 | 46190 | 48486 | 21758 | 11394 | 8670 | 12517 |
| MEAN | 701 | 2148 | 4591 | 2808 | 1192 | 788 | 1540 | 1564 | 725 | 368 | 280 | 417 |
| MAX | 4660 | 4930 | 10400 | 7750 | 1920 | 1410 | 2740 | 3460 | 1730 | 659 | 603 | 1020 |
| MIN | 142 | 790 | 978 | 1240 | 757 | 477 | 736 | 157 | 207 | 181 | 133 | 133 |
| AC-FT | 43100 | 127800 | 282300 | 172700 | 68590 | 48440 | 91620 | 96170 | 43160 | 22600 | 17200 | 24830 |

CAL YR 1975 TOTAL 539161 MEAN 1477 MAX 10400 MIN 142 AC-FT 1069000
WTR YR 1976 TOTAL 523564 MEAN 1431 MAX 10400 MIN 133 AC-FT 1038000

## 12107000 GREEN RIVER AT KANASKAT, WA

LOCATION.--Lat 47°19'10", long 121°53'33", in NE¼SE¼ sec.10, T.21 N., R.7 E., King County, Hydrologic Unit 17110013, at county bridge at Kanasket, 4.5 mi (7.2 km) downstream from gaging station and 7 mi (11 km) downstream from North Fork.

DRAINAGE AREA.--240 mi² (622 km²).

PERIOD OF RECORD.--Water years 1950-57, 1959, October 1975 to September 1976 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: August 1950 to September 1957.
SUSPENDED SEDIMENT: October 1952 to September 1957.

REMARKS.--Records prior to 1975 published as 12106500 "Green River near Palmer."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 15... | 1445 | 158 | 71 | 7.7 | 12.0 | 17 | 3 | 11.2 | B140 |
| 21... | 1635 | 929 | 50 | 7.3 | 9.9 | 29 | 6 | 11.2 | 1100 |
| NOV | | | | | | | | | |
| 04... | 1300 | 3110 | 41 | 7.2 | 8.2 | 25 | 10 | 11.9 | B300 |
| 18... | 1425 | 1040 | 48 | 7.4 | 3.9 | 13 | 3 | 12.9 | B60 |
| DEC | | | | | | | | | |
| 02... | 1350 | 10700 | 29 | 7.0 | 5.7 | 259 | 390 | 13.0 | <500 |
| 16... | 1325 | 2150 | 47 | 6.8 | 4.4 | 17 | 7 | 12.9 | 250 |
| JAN | | | | | | | | | |
| 13... | 1335 | 1480 | 43 | 7.6 | 3.6 | 8 | 3 | 13.2 | B90 |
| 27... | 1315 | 3990 | 34 | 7.0 | 5.7 | 58 | 220 | 9.8 | B2500 |
| FEB | | | | | | | | | |
| 03... | 1255 | 1680 | 41 | 7.5 | 4.1 | 13 | 10 | 13.1 | <100 |
| 18... | 1300 | 2000 | 39 | 7.4 | 3.8 | 13 | 12 | 13.0 | B20 |
| MAR | | | | | | | | | |
| 02... | 1325 | 614 | 51 | 7.1 | 3.7 | 13 | 5 | 13.4 | B4 |
| 17... | 1300 | 964 | 46 | 7.7 | 6.4 | 4 | 5 | 12.6 | 57 |
| APR | | | | | | | | | |
| 06... | 1400 | 2310 | 36 | 7.5 | 7.9 | 13 | 10 | 12.6 | 72 |
| 20... | 1355 | 1850 | 39 | 7.3 | 6.8 | 17 | 7 | 12.7 | 46 |
| MAY | | | | | | | | | |
| 04... | 1410 | 2900 | 38 | 6.9 | 7.2 | 21 | 10 | 12.4 | 74 |
| 18... | 1415 | 1360 | 40 | 7.5 | 9.3 | 13 | 5 | 12.7 | 16 |
| JUN | | | | | | | | | |
| 02... | 1350 | 292 | 46 | 7.7 | 10.1 | 9 | 2 | 12.2 | B28 |
| 15... | 1340 | 771 | 40 | 7.2 | 10.5 | 17 | 3 | 11.7 | 54 |
| JUL | | | | | | | | | |
| 07... | 1330 | 434 | 46 | 7.6 | 13.8 | 8 | 2 | 10.8 | -- |
| 20... | 1340 | 380 | 50 | 7.4 | 13.6 | 13 | 2 | 10.9 | 60 |
| AUG | | | | | | | | | |
| 03... | 1400 | 330 | 50 | 7.7 | 16.6 | 8 | 1 | 9.7 | B180 |
| 17... | 1350 | 289 | 57 | 7.6 | 15.7 | 8 | 1 | 9.9 | B25 |
| SEP | | | | | | | | | |
| 08... | 1405 | 643 | 50 | 7.6 | 16.0 | 13 | 2 | 10.1 | >90 |
| 28... | 1405 | 894 | 49 | 7.7 | 15.6 | -- | 3 | 9.9 | B80 |

B Results based upon colony counts outside the ideal range.

12107000 GREEN RIVER AT KANASKAT, WA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | FECAL COLI-FORM (COL. PER 100 ML) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 15... | <2 | 23 | 0 | 7.0 | 1.4 | 3.5 | .5 | 30 |
| 21... | B8 | 17 | 0 | 5.6 | .8 | 2.8 | .6 | 26 |
| NOV | | | | | | | | |
| 04... | B4 | 16 | 0 | 5.1 | .9 | 2.5 | .3 | 22 |
| 18... | <2 | 19 | 1 | 5.9 | 1.1 | 2.5 | .4 | 22 |
| DEC | | | | | | | | |
| 02... | <50 | 13 | 3 | 3.5 | 1.1 | 2.0 | .5 | 12 |
| 16... | <2 | 19 | 0 | 5.9 | 1.1 | 2.8 | .4 | 24 |
| JAN | | | | | | | | |
| 13... | <2 | 17 | 0 | 4.5 | 1.3 | 2.8 | .6 | 24 |
| 27... | <100 | 13 | 1 | 4.0 | .8 | 2.0 | .3 | 15 |
| FEB | | | | | | | | |
| 03... | <2 | 19 | 0 | 5.3 | 1.3 | 2.5 | .5 | 26 |
| 18... | B5 | 15 | 0 | 4.4 | 1.0 | 2.2 | .5 | 19 |
| MAR | | | | | | | | |
| 02... | <2 | 19 | 0 | 6.1 | 1.0 | 2.5 | .8 | 23 |
| 17... | <2 | 18 | 0 | 6.1 | .7 | 2.8 | .3 | 22 |
| APR | | | | | | | | |
| 06... | <2 | 13 | 0 | 4.2 | .5 | 2.1 | .3 | 20 |
| 20... | <2 | 14 | 0 | 4.0 | .9 | 2.3 | .3 | 20 |
| MAY | | | | | | | | |
| 04... | <2 | 12 | 0 | 3.6 | .8 | 2.4 | .6 | 17 |
| 18... | <2 | 13 | 0 | 4.2 | .7 | 2.0 | .3 | 19 |
| JUN | | | | | | | | |
| 02... | <2 | 17 | 0 | 5.0 | 1.0 | 2.3 | .3 | 22 |
| 15... | B6 | 14 | 0 | 4.5 | .7 | 2.3 | .3 | 20 |
| JUL | | | | | | | | |
| 07... | B26 | 16 | 0 | 5.1 | .7 | 2.2 | .3 | 22 |
| 20... | B2 | 18 | 0 | 5.7 | .8 | 2.7 | .4 | 24 |
| AUG | | | | | | | | |
| 03... | B10 | 18 | 1 | 5.6 | .9 | 2.8 | .4 | 20 |
| 17... | <2 | 20 | 0 | 6.3 | 1.1 | 3.1 | .4 | 28 |
| SEP | | | | | | | | |
| 08... | B2 | 18 | 0 | 5.6 | .9 | 3.7 | .4 | 26 |
| 28... | B6 | 17 | 0 | 5.2 | .9 | 2.7 | .3 | 27 |

B Results based upon colony counts outside the ideal range.

| DATE | ALKA-LINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 15... | 25 | 1.0 | 2.3 | 3.1 | .12 | .07 | .02 | .01 |
| 21... | 21 | 2.1 | 2.6 | 1.0 | .10 | .06 | .02 | .00 |
| NOV | | | | | | | | |
| 04... | 18 | 2.2 | 3.6 | .9 | .12 | .06 | .03 | .00 |
| 18... | 18 | 1.4 | 3.1 | 1.1 | .13 | .06 | .01 | .00 |
| DEC | | | | | | | | |
| 02... | 10 | 1.9 | 3.0 | 1.5 | .13 | .08 | .78 | .00 |
| 16... | 20 | 6.1 | 2.6 | 1.8 | .10 | .06 | .03 | .00 |
| JAN | | | | | | | | |
| 13... | 20 | 1.0 | 2.3 | 1.6 | .13 | .06 | .03 | .02 |
| 27... | 12 | 2.4 | 2.5 | .1 | .10 | .24 | .79 | .00 |
| FEB | | | | | | | | |
| 03... | 21 | 1.3 | 2.0 | .3 | .10 | .09 | .03 | .01 |
| 18... | 16 | 1.2 | 2.0 | 1.5 | .12 | .07 | .03 | .01 |
| MAR | | | | | | | | |
| 02... | 19 | 2.9 | 5.1 | 1.3 | .11 | .06 | .01 | .00 |
| 17... | 18 | .7 | 2.5 | 1.1 | .06 | .04 | .01 | .00 |
| APR | | | | | | | | |
| 06... | 16 | 1.0 | 2.3 | 1.0 | .04 | .04 | .03 | .00 |
| 20... | 16 | 1.6 | 1.6 | 1.2 | .04 | .11 | .02 | .01 |
| MAY | | | | | | | | |
| 04... | 14 | 3.4 | 1.9 | .8 | .05 | .10 | .02 | .00 |
| 18... | 16 | 1.0 | 1.5 | 1.1 | .03 | .06 | .01 | .00 |
| JUN | | | | | | | | |
| 02... | 18 | .7 | 2.4 | 1.4 | .03 | .06 | .01 | .00 |
| 15... | 16 | 2.0 | 3.3 | 1.0 | .04 | .04 | .01 | .00 |
| JUL | | | | | | | | |
| 07... | 18 | .9 | 1.8 | 1.0 | .01 | .06 | .01 | .00 |
| 20... | 20 | 1.5 | 2.6 | 1.6 | .04 | .09 | .01 | .00 |
| AUG | | | | | | | | |
| 03... | 16 | .6 | 2.9 | 1.2 | .02 | .06 | .02 | .00 |
| 17... | 23 | 1.1 | 4.1 | 1.7 | .05 | .07 | .01 | .00 |
| SEP | | | | | | | | |
| 08... | 21 | 1.0 | 2.6 | 1.2 | .01 | .03 | .02 | .00 |
| 28... | 22 | .9 | 3.5 | 1.1 | .00 | .04 | .02 | .00 |

## 12107498 GREEN RIVER AT FLAMING GEYSER BRIDGE NEAR BLACK DIAMOND, WA

LOCATION.--Lat 47°16'51", long 122°02'12", in SW¼NW¼ sec.27, T.21 N., R.6 E., King County, Hydrologic Unit 17110013, at road bridge 2.2 mi (3.5 km) upstream from Newaukum Creek and 2.5 mi (4.0 km) southwest of Black Diamond.

DRAINAGE AREA.--280 $mi^2$ (725 $km^2$).

PERIOD OF RECORD.--October 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 15... | 1400 | 235 | 57 | 7.7 | 12.4 | 17 | 6 | 12.2 | B200 |
| 21... | 1600 | 1100 | 57 | 7.4 | 10.1 | 25 | 5 | 11.5 | B2600 |
| NOV | | | | | | | | | |
| 04... | 1230 | 3250 | 44 | 7.4 | 8.8 | 29 | 8 | 11.9 | B200 |
| 18... | 1405 | 1790 | 58 | 7.4 | 4.9 | 13 | 4 | 13.1 | B180 |
| DEC | | | | | | | | | |
| 02... | 1310 | 12000 | 33 | 7.0 | 6.2 | 263 | 430 | 12.3 | B1000 |
| 16... | 1250 | 2250 | 55 | 6.9 | 5.2 | 17 | 7 | 12.9 | 290 |
| JAN | | | | | | | | | |
| 13... | 1300 | 1810 | 54 | 7.4 | 5.0 | 8 | 4 | 13.0 | 190 |
| 27... | 1250 | 2500 | 39 | 7.1 | 6.4 | 29 | 100 | 12.3 | B1300 |
| FEB | | | | | | | | | |
| 03... | 1230 | 1750 | 50 | 7.6 | 4.6 | 17 | 8 | 13.1 | B40 |
| 18... | 1230 | 2110 | 47 | 7.4 | 4.4 | 21 | 8 | 13.2 | B130 |
| MAR | | | | | | | | | |
| 02... | 1255 | 770 | 66 | 7.2 | 4.8 | 13 | 5 | 13.6 | B4 |
| 17... | 1230 | 730 | 61 | 7.8 | 8.0 | 4 | 5 | 12.6 | 40 |
| APR | | | | | | | | | |
| 06... | 1325 | 1890 | 42 | 7.9 | 9.7 | 8 | 7 | 12.8 | B55 |
| 20... | 1315 | 1370 | 50 | 7.6 | 8.9 | 13 | 7 | 12.7 | 40 |
| MAY | | | | | | | | | |
| 04... | 1330 | 3200 | 39 | 7.2 | 8.5 | 25 | 10 | 12.3 | B35 |
| 18... | 1330 | 1750 | 45 | 7.7 | 10.5 | 8 | 5 | 13.2 | 16 |
| JUN | | | | | | | | | |
| 02... | 1315 | 290 | 68 | 8.0 | 11.5 | 9 | 2 | 13.0 | B70 |
| 15... | 1300 | 365 | 48 | 7.9 | 10.9 | 17 | 4 | 11.9 | B70 |
| JUL | | | | | | | | | |
| 07... | 1250 | 440 | 60 | 8.0 | 14.7 | 13 | 1 | 11.2 | B130 |
| 20... | 1300 | 365 | 65 | 7.7 | 14.8 | 13 | 4 | 11.1 | 140 |
| AUG | | | | | | | | | |
| 03... | 1325 | 265 | 70 | 7.6 | 16.7 | 8 | 1 | 10.4 | B150 |
| 17... | 1247 | 330 | 66 | 7.7 | 15.5 | 8 | 2 | 10.6 | B60 |
| SEP | | | | | | | | | |
| 08... | 1315 | 500 | 61 | 7.7 | 14.9 | 13 | 4 | 11.0 | B400 |
| 28... | 1310 | 810 | 56 | 7.7 | 15.4 | -- | 3 | 10.4 | 970 |

B Results based upon colony counts outside the ideal range.

12107498 GREEN RIVER AT FLAMING GEYSER BRIDGE NEAR BLACK DIAMOND, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | FECAL COLI-FORM (COL. PER 100 ML) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 15... | <2 | 31 | 0 | 8.8 | 2.1 | 4.5 | .7 | 41 |
| 21... | B26 | 27 | 5 | 9.4 | .9 | 3.1 | .6 | 27 |
| NOV | | | | | | | | |
| 04... | <5 | 17 | 0 | 5.5 | .9 | 2.4 | .3 | 25 |
| 18... | B2 | 25 | 3 | 7.9 | 1.2 | 2.8 | .6 | 27 |
| DEC | | | | | | | | |
| 02... | B50 | 12 | 2 | 3.3 | .9 | 2.6 | .8 | 12 |
| 16... | <2 | 21 | 2 | 6.4 | 1.2 | 2.9 | .5 | 23 |
| JAN | | | | | | | | |
| 13... | <5 | 20 | 0 | 5.4 | 1.6 | 3.1 | .5 | 26 |
| 27... | B30 | 17 | 1 | 4.2 | 1.5 | 2.1 | .4 | 19 |
| FEB | | | | | | | | |
| 03... | <2 | 19 | 0 | 5.5 | 1.3 | 2.7 | .5 | 23 |
| 18... | B5 | 18 | 0 | 5.1 | 1.3 | 3.5 | .6 | 22 |
| MAR | | | | | | | | |
| 02... | <2 | 29 | 6 | 8.6 | 1.9 | 3.1 | .8 | 29 |
| 17... | B8 | 22 | 0 | 6.8 | 1.3 | 3.1 | .4 | 28 |
| APR | | | | | | | | |
| 06... | 10 | 15 | 0 | 4.7 | .8 | 2.4 | .3 | 21 |
| 20... | <2 | 18 | 0 | 4.9 | 1.3 | 2.8 | .4 | 24 |
| MAY | | | | | | | | |
| 04... | <2 | 14 | 0 | 4.1 | .9 | 2.5 | .5 | 18 |
| 18... | <2 | 14 | 0 | 4.4 | .8 | 2.4 | .5 | 23 |
| JUN | | | | | | | | |
| 02... | <2 | 24 | 0 | 6.8 | 1.8 | 3.3 | .4 | 31 |
| 15... | B18 | 16 | 0 | 4.7 | 1.0 | 2.6 | .3 | 22 |
| JUL | | | | | | | | |
| 07... | B2 | 21 | 0 | 6.3 | 1.2 | 2.8 | .4 | 28 |
| 20... | B2 | 24 | 0 | 7.0 | 1.6 | 3.0 | .5 | 30 |
| AUG | | | | | | | | |
| 03... | B2 | 24 | 4 | 7.2 | 1.5 | 3.5 | .4 | 25 |
| 17... | <2 | 24 | 2 | 7.0 | 1.6 | 3.8 | .5 | 27 |
| SEP | | | | | | | | |
| 08... | B4 | 20 | 0 | 6.2 | 1.2 | 4.2 | .7 | 30 |
| 28... | B26 | 19 | 0 | 5.6 | 1.2 | 2.9 | .3 | 29 |

B Results based upon colony counts outside the ideal range.

| DATE | ALKA-LINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 15... | 34 | 1.3 | 3.3 | 2.5 | .16 | .09 | .02 | .00 |
| 21... | 22 | 1.7 | 3.0 | 1.3 | .12 | .06 | .02 | .00 |
| NOV | | | | | | | | |
| 04... | 21 | 1.6 | 2.4 | .7 | .15 | .06 | .02 | .00 |
| 18... | 22 | 1.7 | 2.2 | 1.8 | .18 | .06 | .02 | .00 |
| DEC | | | | | | | | |
| 02... | 10 | 1.9 | 3.7 | 1.5 | .16 | .08 | .81 | .01 |
| 16... | 19 | 4.6 | 4.0 | 1.7 | .20 | .06 | .03 | .00 |
| JAN | | | | | | | | |
| 13... | 21 | 1.7 | 2.6 | 2.6 | .24 | .08 | .02 | .01 |
| 27... | 16 | 2.4 | 2.4 | 1.2 | .15 | .16 | .24 | .00 |
| FEB | | | | | | | | |
| 03... | 19 | .9 | 3.0 | 1.0 | .19 | .09 | .02 | .01 |
| 18... | 18 | 1.4 | 2.4 | 1.7 | .18 | .08 | .04 | .02 |
| MAR | | | | | | | | |
| 02... | 24 | 2.9 | 5.3 | 1.6 | .26 | .06 | .01 | .00 |
| 17... | 23 | .7 | 3.8 | 1.4 | .16 | .03 | .01 | .00 |
| APR | | | | | | | | |
| 06... | 17 | .4 | 2.8 | 1.2 | .07 | .04 | .03 | .00 |
| 20... | 20 | 1.0 | 2.3 | 1.5 | .08 | .10 | .01 | .00 |
| MAY | | | | | | | | |
| 04... | 15 | 1.8 | 1.3 | 1.2 | .06 | .08 | .03 | .00 |
| 18... | 19 | .7 | 2.4 | 1.8 | .08 | .18 | .01 | .00 |
| JUN | | | | | | | | |
| 02... | 25 | .5 | 7.1 | 1.6 | .10 | .09 | .01 | .00 |
| 15... | 18 | .4 | 3.1 | 1.6 | .04 | .05 | .01 | .00 |
| JUL | | | | | | | | |
| 07... | 23 | .4 | 3.1 | 1.9 | .06 | .05 | .01 | .00 |
| 20... | 25 | 1.0 | 4.1 | 1.7 | .11 | .08 | .01 | .00 |
| AUG | | | | | | | | |
| 03... | 21 | 1.0 | 6.6 | 1.5 | .07 | .07 | .01 | .00 |
| 17... | 22 | .9 | 4.6 | 2.1 | .10 | .04 | .02 | .00 |
| SEP | | | | | | | | |
| 08... | 25 | 1.0 | 5.1 | 2.1 | .05 | .05 | .02 | .00 |
| 28... | 24 | .9 | 3.0 | 1.4 | .01 | .03 | .01 | .00 |

## 12108500 NEWAUKUM CREEK NEAR BLACK DIAMOND, WA

LOCATION.--Lat 47°16'33", long 122°03'30", in NW¼SW¼ sec.28, T.21 N., R.6 E., King County, Hydrologic Unit 17110013, on right bank 0.1 mi (0.2 km) downstream from West Whitney Hill bridge, 0.8 mi (1.3 km) upstream from mouth, and 3.5 mi (5.6 km) southwest of Black Diamond.

DRAINAGE AREA.--27.4 $mi^2$ (71.0 $km^2$).

PERIOD OF RECORD.--July 1944 to November 1950, water year 1951-52 (annual maximum), September 1952 to current year.

REVISED RECORDS.--WSP 1396: 1946(M), 1949(P). WSP 1932: Drainage area. WRD Wash. 1974: 1973(M).

GAGE.--Water-stage recorder. Altitude of gage is 310 ft (94 m), from topographic map. November 1950 to September 1952 stilling well with nonrecording gage only.

REMARKS.--Records fair. Many small diversions above station for irrigation and domestic use. No regulation.

AVERAGE DISCHARGE.--Water year 1975: 29 years (water years 1945-50, 1953-75) 63.5 $ft^3/s$ (1.798 $m^3/s$), 31.47 in/yr (799 mm/yr), 46,010 acre-ft/yr (56.7 $hm^3/yr$).

Water year 1976: 30 years (water years 1945-50, 1953-76), 63.7 $ft^3/s$ (1,804 $m^3/s$), 31.57 in/yr (802 mm/yr), 46,150 acre-ft/yr (56.9 $hm^3/yr$)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,820 $ft^3/s$ (5.15 $m^3/s$) probably Feb. 17, 1949, gage height, 3.54 ft (1.079 m), from recorded range in stage, from rating curve extended above 600 $ft^3/s$ (17.0 $m^3/s$); minimum, 8.0 $ft^3/s$ (0.23 $m^3/s$) Oct. 13, 14, 1952; minimum gage height, 0.62 ft (0.189 m) Aug. 26, 1958.

EXTREMES FOR CURRENT PERIOD.--Water year 1975: Peak discharges above base of 450 $ft^3/s$ (12.7 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 13 | 2000 | *719 | 20.4 | *3.01 | 0.917 | Feb. 19 | 2200 | 544 | 15.4 | 2.83 | 0.863 |

Minimum discharge, 14 $ft^3/s$ (0.40 $m^3/s$) Oct. 16, 17, 18, 19, 20, gage height, 1.02 ft (0.311 m).

Water year 1976: Peak discharge above base of 450 $ft^3/s$ (12.7 $m^3/s$) and maximum discharge, 604 $ft^3/s$ (17.1 $m^3/s$) Dec. 3, gage height, 2.84 ft (0.866 m); minimum discharge, 15 $ft^3/s$ (0.42 $m^3/s$) Oct. 2, minimum gage height, 1.12 ft (0.341 m) July 19, 20, 21, 22, 31, Aug. 1.

REVISION.--Revised figures of discharge for the water year 1975, superseding those published in the report for 1975 are given herein.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16 | 20 | 25 | 190 | 130 | 160 | 70 | 39 | 30 | 28 | 21 | 39 |
| 2 | 17 | 18 | 31 | 190 | 115 | 200 | 68 | 40 | 30 | 28 | 20 | 34 |
| 3 | 16 | 17 | 29 | 200 | 100 | 180 | 70 | 46 | 30 | 27 | 20 | 29 |
| 4 | 16 | 17 | 39 | 250 | 95 | 160 | 75 | 42 | 32 | 26 | 21 | 26 |
| 5 | 16 | 17 | 33 | 280 | 85 | 140 | 80 | 40 | 32 | 25 | 19 | 25 |
| 6 | 16 | 19 | 40 | 290 | 80 | 130 | 70 | 46 | 32 | 24 | 18 | 24 |
| 7 | 17 | 25 | 47 | 250 | 100 | 120 | 62 | 43 | 30 | 24 | 19 | 24 |
| 8 | 15 | 20 | 36 | 260 | 76 | 110 | 58 | 39 | 30 | 24 | 23 | 23 |
| 9 | 15 | 28 | 37 | 230 | 96 | 130 | 54 | 37 | 29 | 24 | 20 | 23 |
| 10 | 15 | 29 | 43 | 210 | 104 | 120 | 52 | 36 | 28 | 24 | 20 | 22 |
| 11 | 15 | 19 | 41 | 190 | 240 | 110 | 50 | 49 | 27 | 24 | 19 | 22 |
| 12 | 15 | 19 | 40 | 300 | 258 | 100 | 48 | 43 | 27 | 24 | 18 | 21 |
| 13 | 15 | 23 | 48 | 449 | 235 | 95 | 46 | 39 | 26 | 24 | 18 | 20 |
| 14 | 15 | 19 | 46 | 400 | 151 | 90 | 47 | 36 | 26 | 24 | 18 | 19 |
| 15 | 15 | 17 | 55 | 350 | 116 | 90 | 45 | 35 | 26 | 26 | 18 | 20 |
| 16 | 15 | 17 | 61 | 330 | 133 | 93 | 44 | 35 | 27 | 24 | 19 | 20 |
| 17 | 15 | 28 | 95 | 320 | 123 | 110 | 43 | 34 | 27 | 24 | 20 | 20 |
| 18 | 15 | 47 | 70 | 310 | 118 | 150 | 42 | 36 | 26 | 24 | 61 | 18 |
| 19 | 15 | 32 | 84 | 280 | 211 | 135 | 48 | 35 | 26 | 23 | 36 | 18 |
| 20 | 18 | 57 | 130 | 260 | 310 | 120 | 46 | 34 | 25 | 22 | 27 | 18 |
| 21 | 16 | 117 | 212 | 240 | 250 | 110 | 43 | 31 | 27 | 22 | 24 | 18 |
| 22 | 16 | 80 | 170 | 220 | 200 | 100 | 42 | 32 | 26 | 21 | 24 | 17 |
| 23 | 15 | 60 | 130 | 225 | 150 | 95 | 44 | 42 | 26 | 21 | 40 | 17 |
| 24 | 15 | 60 | 110 | 230 | 180 | 90 | 54 | 40 | 30 | 20 | 42 | 17 |
| 25 | 15 | 50 | 100 | 240 | 160 | 85 | 67 | 36 | 30 | 20 | 30 | 17 |
| 26 | 15 | 42 | 120 | 240 | 140 | 80 | 52 | 35 | 32 | 20 | 26 | 17 |
| 27 | 17 | 37 | 250 | 210 | 130 | 75 | 48 | 36 | 42 | 20 | 25 | 17 |
| 28 | 19 | 32 | 220 | 190 | 140 | 72 | 44 | 35 | 35 | 22 | 29 | 16 |
| 29 | 23 | 30 | 200 | 170 | --- | 70 | 43 | 34 | 31 | 23 | 34 | 17 |
| 30 | 17 | 27 | 220 | 160 | --- | 70 | 40 | 32 | 29 | 22 | 48 | 17 |
| 31 | 19 | --- | 200 | 140 | --- | 72 | --- | 31 | --- | 21 | 55 | --- |
| TOTAL | 499 | 1023 | 2962 | 7804 | 4226 | 3462 | 1595 | 1168 | 874 | 725 | 832 | 635 |
| MEAN | 16.1 | 34.1 | 95.5 | 252 | 151 | 112 | 53.2 | 37.7 | 29.1 | 23.4 | 26.8 | 21.2 |
| MAX | 23 | 117 | 250 | 449 | 310 | 200 | 80 | 49 | 42 | 28 | 61 | 39 |
| MIN | 15 | 17 | 25 | 140 | 76 | 70 | 40 | 31 | 25 | 20 | 18 | 16 |
| CFSM | .59 | 1.24 | 3.49 | 9.20 | 5.51 | 4.09 | 1.94 | 1.38 | 1.06 | .85 | .98 | .77 |
| IN. | .68 | 1.39 | 4.02 | 10.59 | 5.74 | 4.70 | 2.17 | 1.59 | 1.19 | .98 | 1.13 | .86 |
| AC-FT | 990 | 2030 | 5880 | 15480 | 8380 | 6870 | 3160 | 2320 | 1730 | 1440 | 1650 | 1260 |

CAL YR 1974 TOTAL 24,159 MEAN 66.2 MAX 427 MIN 14 CFSM 2.42 IN. 32.80 AC-FT 47,920
WTR YR 1975 TOTAL 25,805 MEAN 70.7 MAX 449 MIN 15 CFSM 2.58 IN. 35.03 AC-FT 51,180

## 12108500 NEWAUKUM CREEK NEAR BLACK DIAMOND, WA--Continued

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16 | 67 | 295 | 103 | 79 | 94 | 75 | 48 | 38 | 27 | 24 | 24 |
| 2 | 16 | 59 | 438 | 92 | 77 | 86 | 68 | 54 | 46 | 27 | 24 | 24 |
| 3 | 18 | 56 | 538 | 94 | 75 | 77 | 62 | 51 | 37 | 27 | 24 | 22 |
| 4 | 18 | 49 | 443 | 205 | 71 | 71 | 57 | 48 | 34 | 28 | 24 | 22 |
| 5 | 23 | 47 | 254 | 192 | 66 | 68 | 56 | 54 | 33 | 26 | 24 | 24 |
| 6 | 24 | 49 | 134 | 162 | 64 | 64 | 56 | 50 | 32 | 25 | 24 | 32 |
| 7 | 18 | 71 | 230 | 154 | 62 | 64 | 53 | 47 | 31 | 26 | 56 | 28 |
| 8 | 18 | 83 | 286 | 186 | 62 | 62 | 59 | 44 | 32 | 46 | 54 | 25 |
| 9 | 23 | 65 | 195 | 137 | 61 | 61 | 61 | 43 | 31 | 32 | 36 | 24 |
| 10 | 25 | 52 | 151 | 110 | 59 | 64 | 54 | 43 | 31 | 29 | 31 | 23 |
| 11 | 19 | 47 | 117 | 137 | 66 | 69 | 75 | 44 | 31 | 28 | 27 | 22 |
| 12 | 18 | 44 | 97 | 132 | 88 | 61 | 64 | 41 | 32 | 28 | 26 | 24 |
| 13 | 18 | 48 | 90 | 90 | 77 | 59 | 62 | 40 | 34 | 27 | 26 | 24 |
| 14 | 18 | 148 | 82 | 282 | 73 | 64 | 68 | 40 | 30 | 26 | 28 | 29 |
| 15 | 22 | 148 | 117 | 337 | 69 | 59 | 80 | 39 | 33 | 25 | 41 | 41 |
| 16 | 21 | 125 | 101 | 310 | 114 | 56 | 64 | 37 | 84 | 24 | 53 | 30 |
| 17 | 24 | 87 | 82 | 205 | 120 | 57 | 61 | 37 | 69 | 24 | 38 | 27 |
| 18 | 29 | 65 | 73 | 159 | 162 | 66 | 61 | 37 | 48 | 24 | 32 | 26 |
| 19 | 29 | 58 | 68 | 127 | 108 | 66 | 79 | 36 | 40 | 24 | 31 | 25 |
| 20 | 27 | 52 | 64 | 114 | 94 | 66 | 105 | 36 | 37 | 24 | 46 | 24 |
| 21 | 42 | 49 | 61 | 105 | 82 | 66 | 73 | 36 | 34 | 24 | 38 | 23 |
| 22 | 43 | 49 | 82 | 119 | 77 | 90 | 66 | 36 | 33 | 24 | 31 | 23 |
| 23 | 43 | 64 | 143 | 110 | 79 | 99 | 71 | 36 | 32 | 25 | 30 | 24 |
| 24 | 33 | 56 | 159 | 97 | 114 | 101 | 86 | 36 | 32 | 24 | 28 | 23 |
| 25 | 53 | 55 | 132 | 90 | 148 | 86 | 73 | 36 | 32 | 24 | 37 | 22 |
| 26 | 64 | 113 | 274 | 86 | 103 | 86 | 68 | 34 | 30 | 24 | 34 | 22 |
| 27 | 47 | 157 | 246 | 189 | 117 | 92 | 59 | 39 | 29 | 24 | 30 | 22 |
| 28 | 52 | 83 | 143 | 114 | 124 | 88 | 56 | 36 | 28 | 25 | 27 | 21 |
| 29 | 163 | 62 | 192 | 97 | 105 | 82 | 51 | 38 | 27 | 24 | 26 | 21 |
| 30 | 163 | 160 | 209 | 86 | --- | 71 | 50 | 41 | 27 | 24 | 25 | 21 |
| 31 | 102 | --- | 124 | 82 | --- | 92 | --- | 38 | --- | 24 | 24 | --- |
| TOTAL | 1229 | 2268 | 5620 | 4503 | 2596 | 2287 | 1973 | 1275 | 1087 | 813 | 999 | 742 |
| MEAN | 39.6 | 75.6 | 181 | 145 | 89.5 | 73.8 | 65.8 | 41.1 | 36.2 | 26.2 | 32.2 | 24.7 |
| MAX | 163 | 160 | 538 | 337 | 162 | 101 | 105 | 54 | 84 | 46 | 56 | 41 |
| MIN | 16 | 44 | 61 | 82 | 59 | 56 | 50 | 34 | 27 | 24 | 24 | 21 |
| CFSM | 1.45 | 2.76 | 6.61 | 5.29 | 3.27 | 2.69 | 2.40 | 1.50 | 1.32 | .96 | 1.18 | .90 |
| IN. | 1.67 | 3.08 | 7.63 | 6.11 | 3.52 | 3.10 | 2.68 | 1.73 | 1.48 | 1.10 | 1.36 | 1.01 |
| AC-FT | 2440 | 4500 | 11150 | 8930 | 5150 | 4540 | 3910 | 2530 | 2160 | 1610 | 1980 | 1470 |

CAL YR 1975 TOTAL 30438 MEAN 83.4 MAX 538 MIN 16 CFSM 3.04 IN 41.32 AC-FT 60370
WTR YR 1976 TOTAL 25392 MEAN 69.4 MAX 538 MIN 16 CFSM 2.53 IN 34.47 AC-FT 50370

NOTE.--No gage-height record Dec. 22 to Feb. 7, Feb. 21 to Apr. 18.

## 12112600 BIG SOOS CREEK ABOVE HATCHERY, NEAR AUBURN, WA

LOCATION.--Lat 47°18'45", long 122°09'51", on west line NW¼ sec.15, T.21 N., R.5 E., King County, Hydrologic Unit 17110013, on left bank 0.2 mi (0.3 km) upstream from fish hatchery, 2.7 mi (4.3 km) east of Auburn, and at mile 0.9 (1.4 km).

DRAINAGE AREA.--66.7 mi$^2$ (172.8 km$^2$), excludes 3.67 mi$^2$ (9.51 km$^2$) in vicinity of Youngs Lake, flow from which has been diverted to Cedar River since about 1935.

PERIOD OF RECORD.--August 1960 to current year. Chemical analyses October 1962 to September 1971, at site 1.0 mi (1.6 km) upstream from gaging station.

GAGE.--Water-stage recorder. Altitude of gage is 70 ft (21 m), from topographic map.

REMARKS.--Records good, except those for period of no gage-height record, which are fair. City of Seattle diverts probably less than 2 ft$^3$/s (0.057 m$^3$/s) from Youngs Lake into Little Soos Creek, a tributary, during low flows. Prior to October 1966 fish hatchery diverted up to 19 ft$^3$/s (0.538 m$^3$/s) 0.5 mi (0.8 km) above station, which was returned below the station.

AVERAGE DISCHARGE.--16 years, 128 ft$^3$/s (3.625 m$^3$/s), 92,740 acre-ft/yr (114 hm$^3$/s).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 1,090 ft$^3$/s (30.9 m$^3$/s) Feb. 28, 1972, gage height, 6.17 ft (1.881 m); minimum, 11 ft$^3$/s (0.312 m$^3$/s) Sept. 5, 1963, gage height, 1.07 ft (0.326 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 440 ft$^3$/s (12.5 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 4 | 0600 | *964 | 27.3 | *5.86 | 1.786 | Jan. 15 | unknown | 638 | 18.1 | 4.86 | 1.481 |
| Dec. 26 | unknown | unknown | --- | unknown | --- | | | | | | |

Minimum discharge, 31 ft$^3$/s (0.88 m$^3$/s) Oct. 2, gage height, 1.81 ft (0.522 m)

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 32 | 207 | 303 | 300 | 225 | 284 | 177 | 100 | 72 | 44 | 35 | 39 |
| 2 | 32 | 179 | 443 | 260 | 215 | 261 | 161 | 117 | 67 | 44 | 36 | 39 |
| 3 | 38 | 165 | 814 | 330 | 205 | 235 | 148 | 110 | 63 | 45 | 36 | 38 |
| 4 | 41 | 152 | 916 | 400 | 200 | 217 | 137 | 104 | 60 | 47 | 35 | 38 |
| 5 | 46 | 138 | 725 | 420 | 195 | 206 | 132 | 106 | 59 | 45 | 36 | 40 |
| 6 | 56 | 135 | 566 | 360 | 190 | 195 | 129 | 99 | 57 | 43 | 37 | 50 |
| 7 | 53 | 164 | 538 | 350 | 184 | 190 | 125 | 95 | 57 | 44 | 56 | 49 |
| 8 | 50 | 211 | 550 | 410 | 181 | 185 | 125 | 91 | 55 | 67 | 73 | 42 |
| 9 | 54 | 211 | 488 | 330 | 177 | 177 | 123 | 87 | 55 | 53 | 53 | 40 |
| 10 | 62 | 182 | 435 | 300 | 172 | 177 | 116 | 86 | 54 | 48 | 45 | 39 |
| 11 | 52 | 160 | 383 | 310 | 181 | 195 | 137 | 86 | 52 | 46 | 41 | 38 |
| 12 | 46 | 146 | 342 | 320 | 222 | 172 | 131 | 82 | 54 | 46 | 40 | 40 |
| 13 | 43 | 146 | 324 | 270 | 215 | 164 | 122 | 79 | 54 | 44 | 41 | 39 |
| 14 | 43 | 273 | 302 | 480 | 218 | 166 | 128 | 79 | 53 | 43 | 44 | 50 |
| 15 | 48 | 338 | 297 | 600 | 215 | 158 | 153 | 77 | 55 | 41 | 66 | 52 |
| 16 | 47 | 348 | 295 | 510 | 284 | 151 | 128 | 74 | 75 | 40 | 82 | 45 |
| 17 | 57 | 320 | 273 | 440 | 302 | 151 | 119 | 73 | 72 | 39 | 59 | 42 |
| 18 | 77 | 273 | 253 | 380 | 359 | 166 | 120 | 70 | 60 | 40 | 48 | 41 |
| 19 | 72 | 237 | 237 | 340 | 313 | 158 | 122 | 69 | 55 | 39 | 47 | 41 |
| 20 | 62 | 207 | 226 | 300 | 282 | 148 | 164 | 68 | 53 | 39 | 59 | 40 |
| 21 | 69 | 190 | 217 | 270 | 257 | 142 | 140 | 66 | 51 | 39 | 51 | 38 |
| 22 | 82 | 181 | 227 | 280 | 237 | 166 | 129 | 63 | 51 | 39 | 46 | 39 |
| 23 | 82 | 197 | 300 | 260 | 224 | 177 | 123 | 64 | 50 | 39 | 45 | 40 |
| 24 | 73 | 186 | 350 | 250 | 233 | 197 | 163 | 68 | 49 | 38 | 43 | 39 |
| 25 | 78 | 174 | 320 | 240 | 273 | 190 | 159 | 69 | 48 | 37 | 47 | 38 |
| 26 | 82 | 209 | 480 | 230 | 269 | 177 | 137 | 66 | 47 | 37 | 45 | 39 |
| 27 | 80 | 230 | 360 | 390 | 284 | 197 | 126 | 68 | 47 | 37 | 42 | 39 |
| 28 | 90 | 216 | 310 | 300 | 322 | 182 | 117 | 67 | 46 | 36 | 41 | 38 |
| 29 | 169 | 197 | 390 | 270 | 297 | 164 | 111 | 68 | 45 | 35 | 41 | 37 |
| 30 | 249 | 230 | 420 | 250 | --- | 156 | 104 | 75 | 44 | 35 | 41 | 37 |
| 31 | 254 | --- | 350 | 235 | --- | 188 | --- | 70 | --- | 35 | 40 | --- |
| TOTAL | 2319 | 6202 | 12434 | 10385 | 6931 | 5692 | 4006 | 2496 | 1660 | 1304 | 1451 | 1226 |
| MEAN | 74.8 | 207 | 401 | 335 | 239 | 184 | 134 | 80.5 | 55.3 | 42.1 | 46.8 | 40.9 |
| MAX | 254 | 348 | 916 | 600 | 359 | 284 | 177 | 117 | 75 | 67 | 82 | 52 |
| MIN | 32 | 135 | 217 | 230 | 172 | 142 | 104 | 63 | 44 | 35 | 35 | 37 |
| AC-FT | 4600 | 12300 | 24660 | 20600 | 13750 | 11290 | 7950 | 4950 | 3290 | 2590 | 2880 | 2430 |

CAL YR 1975 TOTAL 62258 MEAN 171 MAX 916 MIN 30 AC-FT 123500
WTR YR 1976 TOTAL 56106 MEAN 153 MAX 916 MIN 32 AC-FT 111300

NOTE.--No gage-height record Dec. 23 to Feb. 6.

## 12112610 BIG SOOS CREEK NEAR MOUTH NEAR AUBURN, WA

LOCATION.--Lat 47°18'22", long 122°10'16", in NW¼SE¼ sec.16, T.21 N., R.5 E., King County, Hydrologic Unit 17110013, 0.3 mi (0.5 km) upstream from mouth, 0.6 mi (1.0 km) downstream from gaging station and 2.5 mi (4.0 km) east of Auburn.

DRAINAGE AREA.--67 mi² (174 km²), approximately.

PERIOD OF RECORD.--October 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTAN-TANEOUS DIS-CHARGE (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | COLOR (PLAT-INUM-COBALT UNITS) | TUR-BID-ITY (JTU) | DIS-SOLVED OXYGEN (MG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) | FECAL COLI-FORM (COL. PER 100 ML) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 15... | 1325 | 49 | 111 | 6.8 | 11.1 | 54 | 5 | 10.5 | >600 | B130 | 45 | 4 |
| 21... | 1525 | 72 | 107 | 7.3 | 9.7 | 92 | 3 | 10.7 | B3500 | 380 | 44 | 4 |
| NOV | | | | | | | | | | | | |
| 04... | 1155 | 150 | 105 | 7.5 | 11.3 | 92 | 3 | 10.4 | B500 | B25 | 43 | 3 |
| 18... | 1325 | 271 | 101 | 7.3 | 6.0 | 83 | 3 | 12.1 | B200 | B38 | 34 | 1 |
| DEC | | | | | | | | | | | | |
| 16... | 1200 | 295 | 94 | 6.9 | 5.9 | 58 | 3 | 12.4 | 1100 | B45 | 35 | 2 |
| JAN | | | | | | | | | | | | |
| 13... | 1235 | *270 | 93 | 7.6 | 5.4 | 50 | 4 | 12.6 | 1600 | B320 | 37 | 0 |
| FEB | | | | | | | | | | | | |
| 03... | 1200 | *205 | 98 | 7.6 | 5.7 | 38 | 5 | 12.5 | B140 | B40 | 35 | 2 |
| 18... | 1205 | 366 | 86 | 7.3 | 6.0 | 67 | 7 | 12.3 | 2200 | 230 | 34 | 6 |
| MAR | | | | | | | | | | | | |
| 03... | 1245 | 233 | 95 | 7.3 | 4.8 | 38 | 5 | 13.1 | B300 | B14 | 34 | 2 |
| 17... | 1155 | 151 | 104 | 7.6 | 8.7 | 25 | 4 | 11.7 | B280 | B34 | 38 | 3 |
| APR | | | | | | | | | | | | |
| 06... | 1245 | 129 | 100 | 7.4 | 11.6 | 55 | 2 | 11.6 | B200 | 54 | 38 | 3 |
| 20... | 1250 | 169 | 100 | 7.3 | 10.7 | 60 | 5 | 11.4 | B700 | B130 | 36 | 0 |
| MAY | | | | | | | | | | | | |
| 04... | 1305 | 103 | 107 | 7.3 | 11.8 | 38 | 3 | 11.3 | B150 | 42 | 40 | 0 |
| 18... | 1300 | 70 | 108 | 7.5 | 13.1 | 21 | 2 | 11.8 | >200 | B16 | 40 | 0 |
| JUN | | | | | | | | | | | | |
| 02... | 1240 | 67 | 108 | 7.4 | 11.5 | 27 | 2 | 11.8 | B200 | B10 | 39 | 0 |
| 15... | 1235 | 52 | 102 | 7.9 | 12.7 | 25 | 15 | 10.7 | B340 | 110 | 39 | 0 |
| JUL | | | | | | | | | | | | |
| 07... | 1220 | 43 | 110 | 7.7 | 15.0 | 29 | 2 | 10.4 | 92 | B2 | 40 | 0 |
| 20... | 1230 | 39 | 110 | 7.6 | 14.1 | 21 | 2 | 11.6 | 340 | 94 | 44 | 1 |
| AUG | | | | | | | | | | | | |
| 03... | 1245 | 36 | 111 | 7.6 | 15.1 | 21 | 2 | 9.7 | 480 | 72 | 44 | 8 |
| 17... | 1203 | 58 | 109 | 7.5 | 13.9 | 87 | 3 | 9.7 | >4000 | 400 | 43 | 6 |
| SEP | | | | | | | | | | | | |
| 08... | 1235 | 42 | 120 | 7.6 | 12.9 | 33 | 2 | 10.5 | B1300 | B64 | 44 | 0 |
| 28... | 1235 | 38 | 118 | 7.5 | 14.4 | -- | 3 | 8.7 | B500 | 68 | 44 | 0 |

* Mean daily discharge.

## 12112610 BIG SOOS CREEK NEAR MOUTH NEAR AUBURN, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | CAR-BONATE (CO3) (MG/L) | ALKA-LINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | TOTAL NITRATE (N) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 15... | 11 | 4.2 | 5.4 | 1.3 | 50 | 0 | 41 | 13 | 6.7 | 4.2 | .56 |
| 21... | 11 | 4.1 | 5.1 | 1.5 | 49 | 0 | 40 | 3.9 | 6.4 | 4.1 | .53 |
| NOV | | | | | | | | | | | |
| 04... | 11 | 3.8 | 5.8 | 1.2 | 49 | 0 | 40 | 2.5 | 8.4 | 3.2 | .64 |
| 18... | 8.1 | 3.4 | 5.3 | 1.1 | 40 | 0 | 33 | 3.2 | 8.5 | 3.8 | .73 |
| DEC | | | | | | | | | | | |
| 16... | 9.3 | 2.9 | 5.2 | .9 | 41 | 0 | 34 | 8.3 | 8.7 | 3.0 | .74 |
| JAN | | | | | | | | | | | |
| 13... | 8.4 | 3.9 | 5.1 | 1.0 | 46 | 0 | 38 | 1.8 | 7.2 | 2.7 | .80 |
| FEB | | | | | | | | | | | |
| 03... | 8.8 | 3.2 | 5.0 | .9 | 40 | 0 | 33 | 1.6 | 8.4 | 3.1 | .74 |
| 18... | 7.9 | 3.5 | 4.2 | 1.4 | 34 | 0 | 28 | 2.7 | 7.3 | 3.0 | .70 |
| MAR | | | | | | | | | | | |
| 03... | 8.8 | 2.9 | 4.7 | 1.0 | 39 | 0 | 32 | 3.1 | 8.6 | 2.6 | .65 |
| 17... | 8.9 | 3.8 | 5.0 | .9 | 42 | 0 | 34 | 1.7 | 8.5 | 2.6 | .64 |
| APR | | | | | | | | | | | |
| 06... | 9.3 | 3.6 | 4.9 | .9 | 43 | 0 | 35 | 2.7 | 7.2 | 2.4 | .57 |
| 20... | 8.8 | 3.3 | 4.7 | 1.1 | 49 | 0 | 40 | 3.9 | 7.4 | 2.5 | .46 |
| MAY | | | | | | | | | | | |
| 04... | 9.4 | 3.9 | 5.4 | 1.0 | 48 | 0 | 39 | 3.8 | 6.3 | 2.7 | .46 |
| 18... | 10 | 3.6 | 5.4 | .8 | 56 | 0 | 46 | 2.8 | 7.5 | 2.9 | .57 |
| JUN | | | | | | | | | | | |
| 02... | 9.3 | 3.8 | 5.3 | .8 | 48 | 0 | 39 | 3.1 | 9.9 | 2.9 | .52 |
| 15... | 9.5 | 3.8 | 5.4 | .8 | 49 | 0 | 40 | 1.0 | 7.3 | 2.8 | .52 |
| JUL | | | | | | | | | | | |
| 07... | 10 | 3.6 | 5.3 | .9 | 53 | 0 | 43 | 1.7 | 7.2 | 3.2 | .54 |
| 20... | 11 | 3.9 | 5.2 | .9 | 52 | 0 | 43 | 2.1 | 6.9 | 3.1 | .58 |
| AUG | | | | | | | | | | | |
| 03... | 11 | 3.9 | 5.4 | 1.0 | 43 | 0 | 35 | 1.7 | 6.9 | 3.2 | .32 |
| 17... | 11 | 3.7 | 5.1 | 1.2 | 45 | 0 | 37 | 2.3 | 7.8 | 3.0 | .49 |
| SEP | | | | | | | | | | | |
| 08... | 11 | 4.1 | 5.4 | 1.0 | 55 | 0 | 45 | 2.2 | 7.1 | 2.8 | .49 |
| 28... | 11 | 4.0 | 5.2 | 1.1 | 56 | 0 | 46 | 2.8 | 6.6 | 2.8 | .50 |

| DATE | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL ORGANIC NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | DIS-SOLVED CHRO-MIUM (CR) (UG/L) | DIS-SOLVED COPPER (CU) (UG/L) | DIS-SOLVED LEAD (PB) (UG/L) | TOTAL MERCURY (HG) (UG/L) | DIS-SOLVED ZINC (ZN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 15... | .01 | .17 | .22 | .39 | .07 | .03 | 0 | 2 | 9 | .0 | 0 |
| 21... | .01 | .12 | .27 | .39 | .05 | .02 | 0 | 1 | 4 | .0 | 10 |
| NOV | | | | | | | | | | | |
| 04... | .01 | .09 | .26 | .35 | .04 | .01 | 0 | 1 | 6 | .0 | 0 |
| 18... | .00 | .06 | .29 | .35 | .04 | .01 | 0 | 2 | 8 | .0 | 0 |
| DEC | | | | | | | | | | | |
| 16... | .01 | .05 | .21 | .26 | .03 | .01 | 0 | 1 | 10 | .1 | 0 |
| JAN | | | | | | | | | | | |
| 13... | .00 | .06 | .26 | .32 | .03 | .01 | 0 | 2 | 10 | .0 | 0 |
| FEB | | | | | | | | | | | |
| 03... | .01 | .08 | .22 | .30 | .03 | .01 | 0 | 2 | 18 | .0 | 0 |
| 18... | .01 | .07 | .34 | .41 | .05 | .02 | 0 | 2 | 11 | .0 | 20 |
| MAR | | | | | | | | | | | |
| 03... | .01 | .07 | .31 | .38 | .03 | .00 | 0 | 0 | 2 | .0 | 10 |
| 17... | .01 | .08 | .27 | .35 | .03 | .01 | 0 | 4 | 13 | .0 | 10 |
| APR | | | | | | | | | | | |
| 06... | .01 | .08 | .23 | .31 | .03 | .01 | 0 | 3 | 7 | .0 | 10 |
| 20... | .01 | .13 | .20 | .33 | .04 | .01 | 0 | 2 | 6 | .0 | 0 |
| MAY | | | | | | | | | | | |
| 04... | .00 | .10 | .16 | .26 | .02 | .01 | 0 | 4 | 8 | .0 | 0 |
| 18... | .00 | .06 | .22 | .28 | .04 | .01 | 0 | 2 | 8 | .0 | 0 |
| JUN | | | | | | | | | | | |
| 02... | .00 | .08 | .16 | .24 | .03 | .01 | 0 | 2 | 7 | .0 | 10 |
| 15... | .01 | .15 | .25 | .40 | .06 | .01 | 0 | 7 | 16 | .0 | 0 |
| JUL | | | | | | | | | | | |
| 07... | .00 | .09 | .18 | .27 | .04 | .02 | 0 | 2 | 4 | .0 | 30 |
| 20... | .00 | .16 | .15 | .31 | .05 | .03 | 0 | 2 | 9 | .0 | 0 |
| AUG | | | | | | | | | | | |
| 03... | .01 | .20 | .11 | .31 | .05 | .02 | 0 | 9 | 7 | .2 | 10 |
| 17... | .01 | .18 | .38 | .56 | .10 | .03 | 0 | 2 | 10 | .0 | 20 |
| SEP | | | | | | | | | | | |
| 08... | .01 | .20 | .32 | .52 | .09 | .03 | 0 | 3 | 8 | .0 | 0 |
| 28... | .01 | .18 | .35 | .53 | .16 | .04 | 0 | 1 | 6 | .0 | 10 |

## 12113000 GREEN RIVER NEAR AUBURN, WA

LOCATION.--Lat 47°18'45", long 122°12'10", in NW¼NW¼ sec.17, T.21 N., R.5 E., King County, Hydrologic Unit 17110013, on left bank 1.2 mi (1.9 km) east of Auburn, 1.8 mi (2.9 km) downstream from Big Soos Creek, and at mile 32.0 (51.5 km).

DRAINAGE AREA.--399 mi² (1,033 km²), excludes 3.67 mi² (9.51 km²) in the vicinity of Youngs Lake, flow from which has been diverted to Cedar River basin since about 1935.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1936 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Oct. 19, 1936, nonrecording gage at same site and datum.

REMARKS.--Water discharge records good. Since Dec. 5, 1961, flow regulated by Howard A. Hanson Reservoir (see sta 12105800), 32.5 mi (52.3 km) above station, for flood control and during summer months, to augment the natural river flow. City of Tacoma diverted an average daily discharge of about 109 ft³/s (3.09 m³/s) from river at headworks near Palmer, 29 mi (46.7 km) above station, for municipal use. Minor diversions on upstream tributaries for domestic use.

AVERAGE DISCHARGE.--40 years, 1,386 ft³/s (39.25 m³/s), 1,004,000 acre-ft/yr (1,240 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,100 ft³/s (796 m³/s) Nov. 23, 1959, elevation, 69.75 ft (21.260 m); minimum, 81 ft³/s (2.29 m³/s) Sept. 23, 1952; minimum elevation, 53.35 ft (16.261 m) Sept. 12, 13, 15, 16, 17, 1969, Oct. 15, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,100 ft³/s (343 m³/s) Dec. 7, elevation, 63.41 ft (19.327 m); minimum, 278 ft³/s (7.87 m³/s) Oct. 2, 3, elevation, 53.45 ft (16.292 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 282 | 5070 | 4900 | 3470 | 2590 | 1460 | 1510 | 2780 | 464 | 757 | 356 | 385 |
| 2 | 278 | 4330 | 10400 | 2940 | 2300 | 1310 | 1340 | 3390 | 475 | 763 | 356 | 347 |
| 3 | 287 | 3980 | 11600 | 2340 | 2250 | 1250 | 1180 | 3670 | 459 | 815 | 356 | 347 |
| 4 | 296 | 3610 | 11000 | 2580 | 2040 | 1160 | 1190 | 3400 | 448 | 822 | 400 | 347 |
| 5 | 310 | 2370 | 11400 | 3170 | 1850 | 1120 | 1400 | 2880 | 442 | 809 | 342 | 347 |
| 6 | 345 | 2200 | 11200 | 3680 | 1700 | 1100 | 2270 | 2390 | 437 | 770 | 338 | 347 |
| 7 | 315 | 2050 | 11200 | 2710 | 1570 | 1080 | 2360 | 2420 | 431 | 603 | 385 | 356 |
| 8 | 305 | 1850 | 10400 | 2750 | 1550 | 1050 | 2560 | 2670 | 431 | 693 | 415 | 675 |
| 9 | 325 | 1840 | 9820 | 2560 | 1450 | 1000 | 3040 | 2970 | 431 | 627 | 342 | 763 |
| 10 | 350 | 1710 | 9000 | 2590 | 1310 | 1090 | 2430 | 3730 | 426 | 603 | 639 | 828 |
| 11 | 315 | 1480 | 7380 | 2770 | 1340 | 1280 | 2780 | 3170 | 426 | 597 | 573 | 868 |
| 12 | 300 | 1330 | 5880 | 2970 | 1890 | 1210 | 3150 | 2600 | 744 | 591 | 375 | 880 |
| 13 | 296 | 1240 | 4020 | 2540 | 2150 | 1050 | 2810 | 2330 | 1150 | 603 | 342 | 854 |
| 14 | 296 | 1820 | 2840 | 3070 | 2020 | 1080 | 2160 | 2380 | 1100 | 893 | 375 | 744 |
| 15 | 310 | 2570 | 2690 | 5700 | 1900 | 1080 | 2120 | 2280 | 1330 | 645 | 448 | 603 |
| 16 | 310 | 2730 | 3040 | 9000 | 2180 | 1080 | 1760 | 2090 | 1430 | 514 | 492 | 503 |
| 17 | 335 | 2720 | 2780 | 8840 | 2640 | 1130 | 1570 | 2180 | 2200 | 497 | 481 | 448 |
| 18 | 385 | 2160 | 2370 | 9050 | 2940 | 1370 | 1580 | 1960 | 1740 | 497 | 400 | 431 |
| 19 | 390 | 1780 | 2090 | 7870 | 2340 | 1540 | 1570 | 1700 | 1880 | 486 | 395 | 420 |
| 20 | 440 | 1520 | 1770 | 5360 | 2020 | 1370 | 1900 | 1580 | 1850 | 486 | 537 | 410 |
| 21 | 1140 | 1390 | 1760 | 4110 | 1690 | 1370 | 2290 | 1090 | 1740 | 453 | 711 | 375 |
| 22 | 1190 | 1270 | 1950 | 2780 | 1660 | 1440 | 1900 | 731 | 1270 | 437 | 693 | 356 |
| 23 | 1090 | 1370 | 1930 | 2930 | 1680 | 1430 | 1730 | 737 | 1000 | 385 | 395 | 356 |
| 24 | 1050 | 2290 | 2070 | 2220 | 1750 | 1730 | 1740 | 770 | 900 | 370 | 347 | 356 |
| 25 | 1260 | 5130 | 2490 | 2200 | 1750 | 1980 | 1830 | 669 | 887 | 375 | 347 | 481 |
| 26 | 1020 | 4850 | 3650 | 2350 | 1640 | 1730 | 1870 | 470 | 874 | 370 | 342 | 497 |
| 27 | 910 | 5300 | 6800 | 4370 | 1620 | 1530 | 1730 | 442 | 868 | 347 | 342 | 497 |
| 28 | 1020 | 4150 | 4770 | 4490 | 1630 | 1530 | 1670 | 437 | 841 | 342 | 591 | 907 |
| 29 | 2760 | 2650 | 4390 | 3690 | 1550 | 1460 | 1880 | 448 | 763 | 342 | 705 | 1090 |
| 30 | 4550 | 2750 | 5160 | 3060 | --- | 1350 | 2280 | 481 | 757 | 342 | 718 | 1140 |
| 31 | 4670 | --- | 4510 | 2830 | --- | 1430 | --- | 464 | --- | 351 | 770 | --- |
| TOTAL | 27130 | 79510 | 175260 | 120990 | 55000 | 40790 | 59600 | 59309 | 28194 | 17185 | 14308 | 16958 |
| MEAN | 875 | 2650 | 5654 | 3903 | 1897 | 1316 | 1987 | 1913 | 940 | 554 | 462 | 565 |
| MAX | 4670 | 5300 | 11600 | 9050 | 2940 | 1980 | 3150 | 3730 | 2200 | 893 | 770 | 1140 |
| MIN | 278 | 1240 | 1760 | 2200 | 1310 | 1000 | 1180 | 437 | 426 | 342 | 338 | 347 |
| AC-FT | 53810 | 157700 | 347600 | 240000 | 109100 | 80910 | 118200 | 117600 | 55920 | 34090 | 28380 | 33640 |

CAL YR 1975 TOTAL 728979 MEAN 1997 MAX 11600 MIN 278 AC-FT 1446000
WTR YR 1976 TOTAL 694234 MEAN 1897 MAX 11600 MIN 278 AC-FT 1377000

## 12113000 GREEN RIVER NEAR AUBURN, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1952 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: March 1952 to current year.

INSTRUMENTATION.--Temperature recorder since March 1952.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 24.0°C July 28, 1958; minimum, 0.5°C Feb. 16, 17, 1956, Dec. 18-21, 1964.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 20.5°C July 16; minimum, 3.5°C Nov. 29, 30, Dec. 1.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DAY | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | --- | --- | 8.5 | 8.0 | 5.0 | 3.5 | 6.0 | 5.5 | 6.0 | 6.0 | 5.5 | 5.0 |
| 2 | --- | --- | 8.5 | 8.5 | 6.0 | 5.0 | 5.5 | 5.5 | 6.0 | 6.0 | 5.5 | 4.5 |
| 3 | --- | --- | 8.5 | 8.5 | 6.0 | 6.0 | 5.5 | 5.5 | 6.0 | 6.0 | 5.0 | 4.0 |
| 4 | --- | --- | 8.5 | 8.5 | 6.5 | 6.0 | 5.5 | 5.5 | 6.0 | 4.5 | 5.0 | 4.0 |
| 5 | --- | --- | 8.5 | 8.5 | 6.0 | 5.5 | 5.5 | 5.0 | 4.5 | 4.0 | 5.5 | 4.0 |
| 6 | --- | --- | 8.5 | 8.0 | 5.5 | 5.5 | 5.0 | 5.0 | 4.0 | 4.0 | 6.0 | 4.5 |
| 7 | --- | --- | 8.0 | 8.0 | 5.5 | 5.5 | 5.5 | 5.0 | 5.0 | 4.0 | 6.0 | 5.5 |
| 8 | --- | --- | 8.0 | 7.0 | 5.5 | 5.5 | 5.5 | 5.5 | 5.0 | 4.5 | 7.0 | 5.5 |
| 9 | --- | --- | 7.0 | 6.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.0 | 6.5 | 6.0 |
| 10 | --- | --- | 6.5 | 6.5 | 7.0 | 5.5 | 5.5 | 5.5 | 6.0 | 5.5 | 7.0 | 6.5 |
| 11 | --- | --- | 6.5 | 6.5 | 6.5 | 6.5 | 5.5 | 5.5 | 6.0 | 6.0 | 7.0 | 6.0 |
| 12 | --- | --- | --- | --- | 6.5 | 6.0 | 5.5 | 5.5 | 7.0 | 6.0 | 6.5 | 5.5 |
| 13 | --- | --- | --- | --- | 6.0 | 5.5 | 5.5 | 5.5 | 6.0 | 6.0 | 7.0 | 6.0 |
| 14 | --- | --- | 8.5 | 6.5 | 5.5 | 5.5 | 5.5 | 5.5 | 6.5 | 6.0 | 8.0 | 6.0 |
| 15 | --- | --- | 8.0 | 6.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 6.0 | 8.5 | 6.0 |
| 16 | --- | --- | 6.5 | 6.0 | 6.0 | 6.0 | 6.0 | 5.5 | 6.0 | 6.0 | 9.0 | 7.0 |
| 17 | --- | --- | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 6.0 | 5.5 | 8.5 | 8.0 |
| 18 | --- | --- | 5.5 | 5.0 | 5.5 | 5.5 | 6.0 | 6.0 | 5.5 | 5.0 | 8.5 | 6.0 |
| 19 | --- | --- | 5.0 | 4.5 | 5.5 | 5.0 | 6.0 | 5.5 | 5.0 | 5.0 | 7.0 | 6.0 |
| 20 | --- | --- | 5.5 | 4.5 | 5.0 | 5.0 | 5.5 | 5.5 | 6.0 | 5.0 | 7.0 | 6.0 |
| 21 | --- | --- | 6.0 | 5.5 | 5.0 | 4.5 | 5.5 | 5.0 | 6.0 | 5.5 | 7.0 | 6.0 |
| 22 | 10.0 | 9.5 | 6.0 | 5.5 | 5.5 | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 7.0 | 6.0 |
| 23 | 9.5 | 9.0 | 6.5 | 6.0 | 6.0 | 5.5 | 5.0 | 5.0 | 8.0 | 6.5 | 6.5 | 6.0 |
| 24 | 9.0 | 8.0 | 8.0 | 6.5 | 6.5 | 6.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.5 | 5.5 |
| 25 | 8.5 | 8.0 | 6.5 | 6.5 | 6.5 | 6.0 | 5.0 | 5.0 | 6.0 | 5.5 | 5.5 | 5.5 |
| 26 | 8.5 | 8.5 | 6.5 | 6.5 | 7.0 | 6.5 | 5.0 | 5.0 | 6.0 | 5.5 | 6.0 | 5.5 |
| 27 | 8.5 | 8.5 | 6.5 | 5.5 | 6.5 | 6.5 | 6.0 | 5.0 | 6.0 | 5.5 | 6.0 | 5.5 |
| 28 | 8.5 | 8.0 | 5.5 | 4.5 | 6.5 | 6.5 | 6.0 | 6.0 | 5.5 | 5.0 | 6.5 | 5.5 |
| 29 | 8.0 | 8.0 | 4.5 | 3.5 | 7.0 | 6.5 | 6.0 | 6.0 | 6.0 | 5.0 | 6.5 | 5.5 |
| 30 | 8.0 | 8.0 | 3.5 | 3.5 | 7.0 | 6.0 | 6.0 | 6.0 | --- | --- | 6.0 | 6.5 |
| 31 | 8.0 | 8.0 | --- | --- | 6.0 | 6.0 | 6.0 | 6.0 | --- | --- | 8.5 | 6.0 |
| MONTH | --- | --- | 8.5 | 3.5 | 7.0 | 3.5 | 6.0 | 5.0 | 8.0 | 4.0 | 9.0 | 4.0 |

| DAY | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 7.0 | 6.0 | 11.0 | 10.5 | --- | --- | 14.5 | 11.5 | 18.5 | 16.0 | 17.0 | 14.5 |
| 2 | 9.0 | 5.5 | 10.5 | 8.5 | 14.0 | 10.5 | 15.5 | 11.5 | 17.0 | 15.0 | --- | --- |
| 3 | 10.5 | 7.0 | 9.0 | 8.5 | 14.5 | 9.5 | 15.5 | 13.5 | 17.0 | 15.0 | --- | --- |
| 4 | 11.0 | 7.0 | 9.5 | 9.0 | 15.0 | 10.5 | 15.5 | 13.0 | 16.5 | 15.0 | --- | --- |
| 5 | 10.0 | 7.0 | 9.5 | 9.0 | 15.5 | 10.5 | 18.0 | 13.5 | 16.0 | 14.5 | 16.5 | 13.5 |
| 6 | 9.5 | 8.0 | 11.0 | 9.5 | 14.0 | 11.0 | 17.0 | 15.0 | 15.0 | 14.0 | 17.0 | 11.5 |
| 7 | 8.0 | 7.0 | 13.0 | 10.5 | 15.0 | 11.0 | 16.5 | 14.5 | 14.0 | 13.5 | 18.5 | 12.0 |
| 8 | 8.0 | 7.0 | 13.0 | 11.5 | 14.0 | 12.0 | 15.0 | 14.0 | 14.5 | 13.5 | 15.5 | 13.0 |
| 9 | 8.5 | 7.0 | 12.0 | 11.5 | 14.5 | 11.0 | 15.5 | 14.0 | 15.0 | 12.0 | 16.0 | 13.5 |
| 10 | 9.5 | 8.5 | 11.5 | 9.5 | 14.0 | 11.5 | 15.0 | 13.5 | 17.0 | 13.0 | 16.0 | 14.0 |
| 11 | 9.5 | 7.0 | 10.0 | 9.0 | 14.0 | 12.0 | 15.0 | 13.5 | 18.5 | 14.0 | 15.0 | 14.5 |
| 12 | 8.0 | 7.0 | 10.5 | 9.5 | 13.0 | 10.5 | 14.5 | 13.5 | 17.0 | 15.0 | 15.5 | 14.0 |
| 13 | 8.0 | 7.0 | 10.5 | 8.5 | 12.0 | 9.5 | 18.0 | 13.0 | 16.0 | 13.5 | 16.0 | 13.5 |
| 14 | 7.0 | 6.5 | 10.0 | 8.5 | 14.5 | 10.0 | 17.0 | 14.0 | 16.5 | 14.0 | 15.0 | 14.0 |
| 15 | 6.5 | 6.0 | 12.0 | 9.0 | 13.5 | 11.5 | 19.0 | 14.5 | 16.0 | 13.5 | 14.5 | 13.5 |
| 16 | 8.5 | 6.0 | 10.5 | 9.5 | 13.0 | 11.0 | 20.5 | 15.0 | 14.5 | 12.0 | 15.0 | 13.0 |
| 17 | 8.0 | 8.0 | 10.0 | 9.0 | 14.5 | 11.0 | 19.0 | 15.0 | 16.0 | 13.0 | 15.0 | 13.5 |
| 18 | 8.5 | 8.0 | 11.5 | 8.0 | 15.5 | 11.5 | 19.0 | 14.0 | 17.0 | 14.0 | 15.0 | 13.5 |
| 19 | 9.5 | 8.0 | 11.0 | 9.5 | 14.5 | 12.0 | 19.0 | 14.0 | 16.5 | 13.5 | 16.0 | 13.5 |
| 20 | 11.0 | 8.5 | 11.0 | 8.5 | 14.5 | 11.5 | 16.5 | 15.0 | 16.5 | 13.5 | 16.5 | 14.0 |
| 21 | 9.0 | 7.0 | 14.0 | 9.0 | 14.0 | 12.0 | 16.5 | 14.0 | 17.0 | 13.5 | 16.0 | 14.5 |
| 22 | 9.0 | 9.5 | 13.0 | 10.5 | 12.0 | 11.5 | 17.0 | 13.5 | 16.5 | 14.0 | 14.5 | 13.5 |
| 23 | 8.5 | 8.0 | 13.0 | 10.0 | 13.0 | 12.0 | 18.5 | 13.5 | 16.0 | 14.5 | 14.5 | 13.0 |
| 24 | 9.5 | 8.0 | 14.5 | 9.5 | 13.5 | 11.5 | 18.5 | 15.0 | 16.5 | 14.5 | 15.5 | 14.0 |
| 25 | 10.0 | 8.0 | --- | --- | 14.5 | 11.5 | 19.0 | 15.0 | 17.0 | 14.5 | 16.0 | 13.5 |
| 26 | 9.5 | 7.0 | --- | --- | 15.5 | 11.5 | 18.5 | 14.5 | 15.0 | 13.0 | 15.5 | 14.0 |
| 27 | 11.0 | 8.0 | --- | --- | 16.0 | 12.0 | 17.0 | 12.0 | 16.5 | 14.5 | 16.5 | 14.0 |
| 28 | 11.0 | 9.5 | --- | --- | 16.0 | 13.0 | 18.5 | 13.5 | 18.5 | 14.5 | 15.5 | 14.5 |
| 29 | 12.0 | 9.5 | --- | --- | 15.5 | 14.0 | 17.0 | 15.5 | 16.5 | 15.5 | 15.5 | 14.0 |
| 30 | 12.0 | 10.5 | --- | --- | 14.5 | 13.0 | 16.0 | 14.5 | 17.0 | 15.5 | 15.0 | 14.5 |
| 31 | --- | --- | --- | --- | --- | --- | 18.5 | 15.0 | 16.5 | 15.0 | --- | --- |
| MONTH | 12.0 | 5.5 | --- | --- | 16.0 | 9.5 | 20.5 | 11.5 | 18.5 | 12.0 | 18.5 | 11.5 |
| YEAR | 20.5 | 3.5 | | | | | | | | | | |

## 12113340 GREEN RIVER AT 212TH STREET, NEAR KENT, WA

LOCATION.--Lat 47°24'45", long 122°15'49", in NE¼NW¼ sec.11, T.22 N., R.4 E., King County, Hydrologic Unit 17110013, at 212th Street bridge, 2.5 mi (4.0 km) northwest of Kent City Hall, 2.7 mi (4.3 km) southeast of main terminal building of Sea-Tac Airport, and at mile 18.3 (29.4 km).

DRAINAGE AREA.--433 mi$^2$ (1,121 km$^2$).

PERIOD OF RECORD.--Water years 1971, 1974 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by the Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 16... | 1215 | 305 | 120 | 7.4 | 11.8 | 46 | 3 | 9.1 | 2200 |
| 22... | 1345 | 1220 | 80 | 7.3 | 9.8 | 46 | 10 | 10.5 | B5000 |
| NOV | | | | | | | | | |
| 05... | 1150 | 2380 | 62 | 7.3 | 9.1 | 42 | 10 | 10.8 | B1000 |
| 19... | 1230 | 1870 | 72 | 7.3 | 4.3 | 38 | 5 | 12.2 | B250 |
| DEC | | | | | | | | | |
| 03... | 1130 | 11700 | 42 | 7.1 | 7.4 | 188 | 300 | 10.8 | B2200 |
| 17... | 1105 | 2850 | 67 | 6.9 | 5.1 | 29 | 11 | 12.0 | B800 |
| JAN | | | | | | | | | |
| 14... | 1300 | 2780 | 75 | 7.1 | 6.4 | 38 | 16 | 11.8 | 3500 |
| 28... | 1345 | 4490 | 59 | 7.2 | 8.3 | 33 | 90 | 11.7 | B1400 |
| FEB | | | | | | | | | |
| 04... | 1200 | 2070 | 79 | 7.3 | 4.0 | 29 | 10 | 12.4 | B260 |
| 19... | 1205 | 2400 | 72 | 7.0 | 5.3 | 33 | 12 | 12.0 | B800 |
| MAR | | | | | | | | | |
| 03... | 1230 | 1250 | 104 | 7.1 | 4.3 | 42 | 7 | 12.2 | B140 |
| 18... | 1300 | 1180 | 94 | 7.3 | 8.2 | 33 | 6 | 11.1 | 920 |
| APR | | | | | | | | | |
| 07... | 1350 | 2320 | 59 | 6.8 | 8.3 | 17 | 8 | 11.7 | B150 |
| 21... | 1250 | 2320 | 60 | 7.9 | 8.0 | 25 | 9 | 12.2 | >230 |
| MAY | | | | | | | | | |
| 05... | 1250 | 2920 | 51 | 7.5 | 9.0 | 25 | 15 | 11.5 | 240 |
| 19... | 1330 | 1720 | 70 | 6.9 | 10.9 | 13 | 6 | 11.2 | 220 |
| JUN | | | | | | | | | |
| 03... | 1335 | 459 | 131 | 7.3 | 12.7 | 27 | 4 | 9.7 | >1200 |
| 16... | 1330 | 1310 | 70 | 7.3 | 12.7 | 21 | 7 | 10.3 | B750 |
| JUL | | | | | | | | | |
| 08... | 1335 | 712 | 88 | 7.3 | 16.3 | 38 | 6 | 8.7 | 1800 |
| 21... | 1245 | 448 | 109 | 7.3 | 16.1 | 21 | 4 | 9.1 | B1400 |
| AUG | | | | | | | | | |
| 04... | 1200 | 405 | 108 | 7.4 | 17.1 | 25 | 4 | 8.1 | B3400 |
| 18... | 1215 | 400 | 110 | 7.3 | 16.7 | 38 | 3 | 8.0 | >8000 |
| SEP | | | | | | | | | |
| 09... | 1145 | 750 | 80 | 7.3 | 14.5 | 21 | 4 | 9.3 | B800 |
| 29... | 1205 | 1080 | 74 | 7.4 | 15.4 | -- | 5 | 8.8 | 460 |

B Results based upon colony counts outside the ideal range.

## 12113340 GREEN RIVER AT 212TH STREET, NEAR KENT, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | FECAL COLI-FORM (COL. PER 100 ML) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 16... | B620 | -- | -- | -- | -- | -- | -- | -- |
| 22... | 440 | 39 | 10 | 13 | 1.6 | 4.0 | 1.3 | 35 |
| NOV | | | | | | | | |
| 05... | B70 | 23 | 0 | 6.6 | 1.5 | 3.3 | .6 | 35 |
| 19... | B0 | 31 | 5 | 8.7 | 2.2 | 3.8 | 1.1 | 31 |
| DEC | | | | | | | | |
| 03... | B400 | 13 | 0 | 3.3 | 1.2 | 2.6 | 1.1 | 16 |
| 17... | B90 | 27 | 3 | 8.2 | 1.7 | 3.4 | .6 | 30 |
| JAN | | | | | | | | |
| 14... | B00 | 28 | 1 | 7.2 | 2.4 | 3.9 | 1.2 | 33 |
| 28... | B160 | 21 | 2 | 6.2 | 1.3 | 3.4 | 1.8 | 23 |
| FEB | | | | | | | | |
| 04... | B24 | 27 | 0 | 7.1 | 2.2 | 4.9 | .9 | 33 |
| 19... | 310 | 29 | 3 | 7.9 | 2.2 | 3.7 | 1.2 | 31 |
| MAR | | | | | | | | |
| 03... | B25 | 34 | 0 | 9.5 | 2.6 | 6.6 | 1.4 | 44 |
| 18... | 110 | 31 | 0 | 8.4 | 2.5 | 5.5 | .9 | 38 |
| APR | | | | | | | | |
| 07... | B10 | 19 | 0 | 5.6 | 1.3 | 3.3 | .7 | 27 |
| 21... | 40 | 20 | 0 | 5.5 | 1.6 | 3.5 | .7 | 28 |
| MAY | | | | | | | | |
| 05... | B30 | 18 | 0 | 4.9 | 1.4 | 2.9 | .5 | 25 |
| 19... | B22 | 22 | 0 | 6.5 | 1.5 | 4.6 | .5 | 33 |
| JUN | | | | | | | | |
| 03... | 66 | 39 | 0 | 10 | 3.4 | 8.3 | 1.1 | 51 |
| 16... | 290 | 24 | 0 | 6.5 | 1.8 | 3.9 | .6 | 31 |
| JUL | | | | | | | | |
| 08... | 640 | 30 | 0 | 8.4 | 2.1 | 5.1 | .9 | 39 |
| 21... | B33 | 35 | 0 | 10 | 2.5 | 6.7 | .9 | 44 |
| AUG | | | | | | | | |
| 04... | 110 | 37 | 2 | 9.9 | 2.9 | 6.9 | .9 | 42 |
| 18... | 114 | 38 | 5 | 10 | 3.1 | 7.1 | 1.1 | 40 |
| SEP | | | | | | | | |
| 09... | B140 | 26 | 0 | 7.1 | 2.0 | 5.8 | .8 | 37 |
| 29... | 90 | 23 | 0 | 6.6 | 1.7 | 3.9 | .6 | 35 |

B Results based upon colony counts outside the ideal range.

| DATE | ALKA-LINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 16... | -- | -- | -- | -- | .43 | .27 | .09 | .04 |
| 22... | 29 | 2.8 | 4.1 | 2.3 | .34 | .17 | .09 | .02 |
| NOV | | | | | | | | |
| 05... | 29 | 2.8 | 3.3 | 1.3 | .28 | .12 | .06 | .01 |
| 19... | 25 | 2.5 | 5.6 | 2.8 | .35 | .10 | .05 | .01 |
| DEC | | | | | | | | |
| 03... | 13 | 2.0 | 3.4 | 2.2 | .32 | .29 | .61 | .01 |
| 17... | 25 | 6.0 | 3.1 | 1.9 | .39 | .11 | .06 | .01 |
| JAN | | | | | | | | |
| 14... | 27 | 4.2 | 4.3 | 3.0 | .50 | .28 | .12 | .02 |
| 28... | 19 | 2.3 | 4.3 | 2.3 | .29 | .20 | .27 | .01 |
| FEB | | | | | | | | |
| 04... | 27 | 2.6 | 4.3 | 3.2 | .37 | .15 | .06 | .02 |
| 19... | 25 | 5.0 | 4.2 | 2.5 | .41 | .16 | .07 | .03 |
| MAR | | | | | | | | |
| 03... | 36 | 5.6 | 6.0 | 5.1 | .52 | .17 | .06 | .01 |
| 18... | 31 | 3.0 | 5.4 | 3.9 | .39 | .19 | .07 | .02 |
| APR | | | | | | | | |
| 07... | 22 | 6.8 | 3.0 | 1.6 | .18 | .25 | .05 | .01 |
| 21... | 23 | .6 | 2.3 | 1.9 | .19 | .16 | .05 | .02 |
| MAY | | | | | | | | |
| 05... | 21 | 1.3 | 1.7 | 1.3 | .15 | .15 | .05 | .02 |
| 19... | 27 | 6.6 | 3.1 | 3.6 | .17 | .11 | .05 | .01 |
| JUN | | | | | | | | |
| 03... | 42 | 4.1 | 5.9 | 7.3 | .34 | .30 | .08 | .04 |
| 16... | 25 | 2.5 | 4.6 | 2.1 | .20 | .12 | .05 | .00 |
| JUL | | | | | | | | |
| 08... | 32 | 3.1 | 4.4 | 6.6 | .25 | .20 | .09 | .03 |
| 21... | 36 | 3.5 | 5.9 | 6.4 | .26 | .27 | .07 | .04 |
| AUG | | | | | | | | |
| 04... | 34 | 2.7 | 5.5 | 5.2 | .22 | .21 | .10 | .04 |
| 18... | 33 | 3.2 | 5.8 | 5.7 | .36 | .22 | .11 | .04 |
| SEP | | | | | | | | |
| 09... | 30 | 3.0 | 5.4 | 3.6 | .20 | .10 | .09 | .01 |
| 29... | 29 | 2.2 | 3.4 | 2.2 | .09 | .10 | .09 | .01 |

## 12113350 GREEN RIVER AT TUKWILA, WA

LOCATION.--Lat 47°27'55", long 122°14'48", in NW¼SW¼ sec.24, T.23 N., R.4 E., King County, Hydrologic Unit 17110013, on right bank under highway bridge 0.6 mi (1.0 km) southeast of Tukwila, 1.4 mi (2.3 km) upstream from Black River, and at mile 12.4 (20.0 km).

DRAINAGE AREA.--440 mi$^2$ (1,140 km$^2$).

PERIOD OF RECORD.--October 1960 to current year. Chemical analyses October 1967 to September 1970.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Corps of Engineers bench mark).

REMARKS.--Records good. Flow regulated by Howard A. Hanson Reservoir (see sta 12105800) for flood control and during summer months to augment the natural river flow. City of Tacoma diverted an average daily discharge of about 110 ft$^3$/s (3.12 m$^3$/s) from river at headworks near Palmer, 49 mi (78.8 km) above station, for municipal use. Minor diversions and regulation on upstream tributaries. River stages are affected daily by backwater during high tide.

AVERAGE DISCHARGE.--16 years, 1,597 ft$^3$/s (45.23 m$^3$/s), 1,157,000 acre-ft/yr (1,427 hm$^3$/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,100 ft$^3$/s (343 m$^3$/s) Jan. 31, 1965, elevation, 21.70 ft (6.614 m); minimum recorded, 195 ft$^3$/s (5.52 m$^3$/s) Sept. 14, 15, 1961; minimum observed elevation, 2.26 ft (0.689 m) Oct. 24, 1974, but may have been less during period of no gage-height record Oct. 14-27, 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 24, 1959 reached a stage of 22.63 ft (6.898 m), present datum from gage-height record of stages above 14.2 ft (4.33 m), discharge, 13,200 ft$^3$/s (374 m$^3$/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,000 ft$^3$/s (340 m$^3$/s) Dec. 7, elevation, 21.55 ft (6.568 m) from high-water mark in well; minimum, 302 ft$^3$/s (8.55 m$^3$/s) Oct. 1, 2, elevation, 2.71 ft (0.826 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 305 | 5500 | 4030 | 4030 | 2890 | 1730 | 1610 | 2490 | 668 | 809 | 430 | 568 |
| 2 | 310 | 4500 | 9240 | 3420 | 2640 | 1620 | 1450 | 2980 | 659 | 803 | 432 | 395 |
| 3 | 342 | 4300 | 11400 | 2760 | 2450 | 1480 | 1300 | 3420 | 641 | 836 | 430 | 368 |
| 4 | 365 | 3800 | 11600 | 2940 | 2350 | 1380 | 1270 | 3260 | 617 | 848 | 435 | 360 |
| 5 | 403 | 2800 | 11500 | 3220 | 2110 | 1320 | 1330 | 2960 | 599 | 833 | 420 | 365 |
| 6 | 382 | 2500 | 11400 | 4230 | 1960 | 1270 | 2030 | 2400 | 590 | 830 | 392 | 400 |
| 7 | 360 | 2300 | 11500 | 3140 | 1840 | 1260 | 2260 | 2280 | 585 | 728 | 395 | 410 |
| 8 | 378 | 2100 | 11000 | 3040 | 1600 | 1240 | 2300 | 2480 | 582 | 791 | 442 | 542 |
| 9 | 403 | 2100 | 10400 | 2940 | 1730 | 1190 | 2940 | 2710 | 582 | 731 | 450 | 713 |
| 10 | 385 | 2000 | 9630 | 2920 | 1590 | 1230 | 2520 | 3110 | 575 | 674 | 456 | 752 |
| 11 | 350 | 1800 | 7760 | 3130 | 1590 | 1360 | 2620 | 3390 | 580 | 668 | 565 | 806 |
| 12 | 332 | 1610 | 6650 | 3200 | 1810 | 1340 | 2890 | 2640 | 698 | 659 | 528 | 824 |
| 13 | 332 | 1510 | 5220 | 3040 | 2360 | 1230 | 2960 | 2340 | 1080 | 647 | 440 | 821 |
| 14 | 342 | 1930 | 3560 | 3220 | 2280 | 1190 | 2260 | 2310 | 1080 | 800 | 445 | 880 |
| 15 | 365 | 2810 | 3240 | 5240 | 2140 | 1180 | 2160 | 2290 | 1320 | 764 | 490 | 680 |
| 16 | 380 | 3080 | 3440 | 8730 | 2340 | 1200 | 1890 | 2100 | 1270 | 596 | 582 | 568 |
| 17 | 469 | 3050 | 3320 | 8730 | 2720 | 1210 | 1650 | 2110 | 2090 | 575 | 555 | 515 |
| 18 | 481 | 2740 | 2880 | 8930 | 3440 | 1390 | 1620 | 2050 | 1680 | 565 | 480 | 472 |
| 19 | 496 | 2170 | 2620 | 8450 | 2820 | 1640 | 1590 | 1770 | 1790 | 560 | 450 | 468 |
| 20 | 487 | 1800 | 2240 | 6160 | 2360 | 1510 | 1750 | 1660 | 1790 | 555 | 520 | 465 |
| 21 | 1060 | 1750 | 2130 | 4730 | 1980 | 1430 | 2240 | 1340 | 1760 | 535 | 635 | 440 |
| 22 | 1240 | 1590 | 2180 | 3670 | 1880 | 1550 | 1910 | 1020 | 1410 | 512 | 677 | 430 |
| 23 | 1180 | 1620 | 2340 | 3380 | 1850 | 1570 | 1800 | 923 | 1130 | 482 | 518 | 415 |
| 24 | 1140 | 1820 | 2410 | 2770 | 1940 | 1640 | 1720 | 940 | 993 | 455 | 415 | 410 |
| 25 | 1280 | 4930 | 2790 | 2570 | 2050 | 1990 | 1820 | 895 | 958 | 455 | 415 | 468 |
| 26 | 1170 | 5100 | 3600 | 2560 | 1950 | 1940 | 1810 | 776 | 934 | 452 | 410 | 515 |
| 27 | 1060 | 5600 | 6700 | 4040 | 1970 | 1660 | 1790 | 692 | 923 | 438 | 390 | 512 |
| 28 | 1040 | 5040 | 5620 | 4930 | 1970 | 1610 | 1670 | 677 | 906 | 422 | 450 | 650 |
| 29 | 2130 | 3130 | 4770 | 4040 | 1850 | 1550 | 1780 | 668 | 851 | 420 | 659 | 937 |
| 30 | 4800 | 3020 | 5590 | 3660 | --- | 1460 | 2030 | 689 | 821 | 410 | 686 | 1030 |
| 31 | 5000 | --- | 5240 | 3060 | --- | 1470 | --- | 677 | --- | 420 | 716 | --- |
| TOTAL | 28807 | 88040 | 186100 | 130580 | 62720 | 44840 | 58970 | 60097 | 30162 | 19273 | 15330 | 17179 |
| MEAN | 929 | 2935 | 6003 | 4212 | 2163 | 1448 | 1966 | 1939 | 1005 | 622 | 495 | 573 |
| MAX | 5000 | 5600 | 11600 | 8930 | 3440 | 1990 | 2960 | 3420 | 2090 | 848 | 716 | 1030 |
| MIN | 305 | 1510 | 2130 | 2560 | 1590 | 1180 | 1270 | 668 | 575 | 410 | 390 | 360 |
| AC-FT | 57140 | 174600 | 369100 | 259000 | 124400 | 89040 | 117000 | 119200 | 59830 | 38230 | 30410 | 34070 |

CAL YR 1975 TOTAL 786827 MEAN 2156 MAX 11600 MIN 305 AC-FT 1561000
WTR YR 1976 TOTAL 762148 MEAN 2028 MAX 11600 MIN 305 AC-FT 1472000

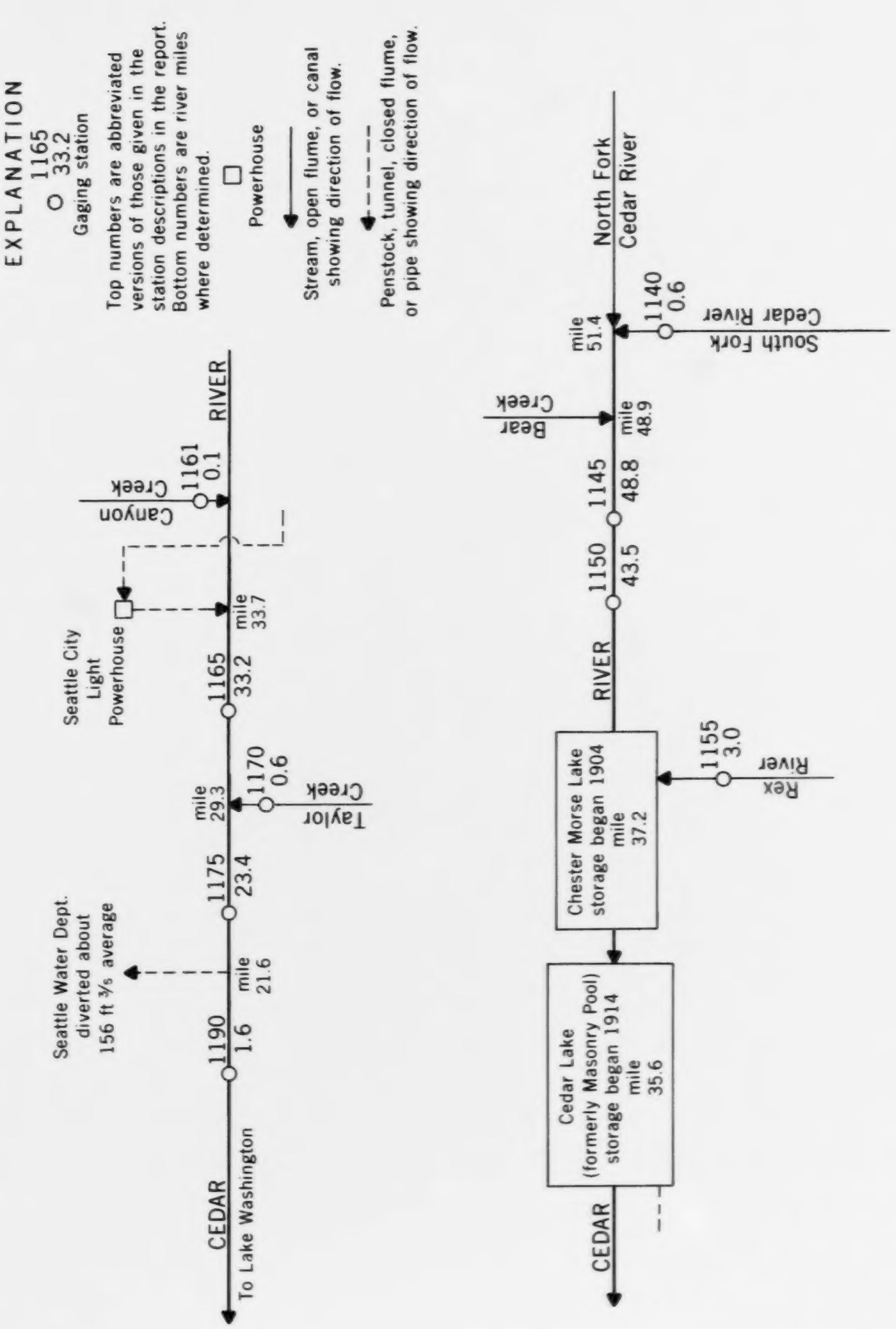
EXPLANATION
1165
33.2
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
CEDAR
To Lake Washington
1190
1.6
Seattle Water Dept. diverted about 156 ft³/s average
mile 21.6
1175
23.4
mile 29.3
1170
0.6
Taylor Creek
1165
33.2
Seattle City Light Powerhouse
mile 33.7
1161
0.1
Canyon Creek
RIVER
CEDAR
Cedar Lake (formerly Masonry Pool) storage began 1914 mile 35.6
Chester Morse Lake storage began 1904 mile 37.2
1155
3.0
Rex River
RIVER
1150
43.5
1145
48.8
mile 48.9
Bear Creek
mile 51.4
1140
0.6
South Fork Cedar River
North Fork Cedar River

Figure 12. Gaging stations in Lake Washington basin (Cedar River).

## 12114000 SOUTH FORK CEDAR RIVER NEAR LESTER, WA

LOCATION.--Lat 47°18'30", long 121°31'00", in NE¼SE¼ sec.15, T.21 N., R.10 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on left bank under logging road bridge, 0.6 mi (1.0 km) upstream from confluence with North Fork and 6.7 mi (10.8 km) north of Lester.

DRAINAGE AREA.--6.00 mi$^2$ (15.54 km$^2$).

PERIOD OF RECORD.--October 1944 to current year.

REVISED RECORDS.--WSP 1 16: 1953-54. WSP 1736: 1950(M).

GAGE.--Water-stage recorder. Concrete control Aug. 31, 1951, to Dec. 9, 1956, and since Oct. 8, 1957. Altitude of gage is 2,300 ft (701 m), from topographic map.

REMARKS.--Records good except those for periods of no gage-height record, Nov. 29 to Dec. 8 and Mar. 3 to Apr. 23, which are fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--32 years, 38.9 ft$^3$/s (1.102 m$^3$/s) 88.04 in/yr (2,236 mm/yr), 28,180 acre-ft/yr (34.7 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,340 ft$^3$/s (66.3 m$^3$/s) Dec. 9, 1956, gage height, 10.41 ft (3.173 m), from floodmarks, from rating curve extended above 300 ft$^3$/s (8.50 m$^3$/s) on basis of slope-area measurement of peak flow; minimum, 1.9 ft$^3$/s (0.054 m$^3$/s) Nov. 27, 28, 1952, gage height, 2.80 ft (0.853 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft$^3$/s (5.66 m$^3$/s) and maximum (*) from peak-stage indicator:

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 26 | 0500 | 221 | 6.26 | 5.82 | 1.774 | Jan. 15 | 2400 | 357 | 10.1 | 6.18 | 1.884 |
| Dec. 2 | unknown | *850 | 24.1 | *7.22 | 2.201 | | | | | | |

Minimum discharge, 3.6 ft$^3$/s (0.102 m$^3$/s) Oct. 1, 2, gage height, 4.33 ft (1.320 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.7 | 90 | 400 | 57 | 44 | 12 | 15 | 138 | 41 | 36 | 8.7 | 10 |
| 2 | 3.6 | 135 | 580 | 48 | 41 | 12 | 14 | 161 | 38 | 32 | 8.4 | 9.9 |
| 3 | 4.3 | 152 | 520 | 41 | 40 | 11 | 15 | 117 | 34 | 32 | 8.0 | 9.5 |
| 4 | 5.6 | 112 | 350 | 44 | 37 | 11 | 17 | 100 | 33 | 32 | 8.0 | 9.1 |
| 5 | 6.1 | 85 | 180 | 43 | 33 | 10 | 21 | 89 | 33 | 32 | 7.0 | 9.9 |
| 6 | 5.4 | 67 | 120 | 40 | 32 | 9.7 | 35 | 89 | 36 | 36 | 7.3 | 12 |
| 7 | 4.7 | 54 | 110 | 36 | 28 | 9.5 | 40 | 100 | 42 | 37 | 12 | 11 |
| 8 | 4.3 | 44 | 120 | 35 | 25 | 9.5 | 60 | 126 | 48 | 40 | 8.7 | 9.5 |
| 9 | 5.1 | 38 | 112 | 32 | 23 | 10 | 61 | 140 | 50 | 32 | 8.4 | 9.1 |
| 10 | 4.9 | 34 | 91 | 32 | 21 | 12 | 65 | 142 | 53 | 28 | 6.7 | 8.7 |
| 11 | 4.3 | 30 | 70 | 32 | 24 | 11 | 75 | 121 | 50 | 25 | 6.1 | 9.1 |
| 12 | 4.1 | 26 | 58 | 28 | 41 | 10 | 62 | 104 | 48 | 25 | 6.1 | 11 |
| 13 | 4.1 | 25 | 49 | 25 | 38 | 10 | 47 | 110 | 43 | 22 | 6.1 | 9.1 |
| 14 | 4.3 | 38 | 43 | 30 | 35 | 10 | 41 | 106 | 39 | 21 | 6.1 | 9.1 |
| 15 | 8.4 | 67 | 45 | 212 | 32 | 11 | 36 | 97 | 45 | 22 | 7.7 | 8.7 |
| 16 | 6.1 | 58 | 40 | 257 | 32 | 12 | 32 | 110 | 86 | 24 | 8.0 | 7.3 |
| 17 | 6.4 | 47 | 36 | 137 | 29 | 15 | 30 | 106 | 79 | 22 | 9.1 | 7.0 |
| 18 | 9.1 | 40 | 33 | 106 | 28 | 17 | 28 | 79 | 80 | 20 | 9.1 | 6.6 |
| 19 | 26 | 35 | 30 | 77 | 25 | 17 | 28 | 66 | 77 | 18 | 11 | 6.4 |
| 20 | 29 | 32 | 27 | 61 | 22 | 15 | 38 | 56 | 61 | 17 | 25 | 6.2 |
| 21 | 28 | 28 | 24 | 50 | 20 | 15 | 36 | 56 | 50 | 15 | 20 | 6.2 |
| 22 | 25 | 25 | 23 | 45 | 19 | 15 | 33 | 57 | 44 | 15 | 18 | 6.2 |
| 23 | 23 | 50 | 22 | 41 | 19 | 15 | 30 | 56 | 39 | 14 | 16 | 6.1 |
| 24 | 21 | 145 | 28 | 36 | 18 | 25 | 33 | 54 | 37 | 14 | 15 | 6.1 |
| 25 | 25 | 115 | 30 | 33 | 16 | 22 | 32 | 53 | 38 | 12 | 15 | 6.0 |
| 26 | 25 | 176 | 106 | 32 | 15 | 20 | 30 | 53 | 34 | 12 | 14 | 5.9 |
| 27 | 23 | 104 | 97 | 87 | 14 | 17 | 33 | 66 | 33 | 12 | 13 | 5.7 |
| 28 | 24 | 69 | 70 | 80 | 14 | 15 | 42 | 61 | 38 | 11 | 12 | 5.6 |
| 29 | 74 | 56 | 91 | 66 | 12 | 14 | 61 | 53 | 42 | 10 | 12 | 5.6 |
| 30 | 117 | 60 | 98 | 56 | --- | 15 | 97 | 49 | 39 | 9.9 | 12 | 5.4 |
| 31 | 85 | --- | 74 | 49 | --- | 17 | --- | 44 | --- | 9.1 | 11 | --- |
| TOTAL | 619.5 | 2037 | 3677 | 1948 | 777 | 424.7 | 1187 | 2759 | 1410 | 687.0 | 335.5 | 238.0 |
| MEAN | 20.0 | 67.9 | 119 | 62.8 | 26.8 | 13.7 | 39.6 | 89.0 | 47.0 | 22.2 | 10.8 | 7.93 |
| MAX | 117 | 176 | 580 | 257 | 44 | 25 | 97 | 161 | 86 | 40 | 25 | 12 |
| MIN | 3.6 | 25 | 22 | 25 | 12 | 9.5 | 14 | 44 | 33 | 9.1 | 6.1 | 5.4 |
| CFSM | 3.33 | 11.3 | 19.8 | 10.5 | 4.47 | 2.28 | 6.60 | 14.8 | 7.83 | 3.70 | 1.80 | 1.32 |
| IN. | 3.84 | 12.63 | 22.79 | 12.08 | 4.82 | 2.63 | 7.36 | 17.10 | 8.74 | 4.26 | 2.08 | 1.48 |
| AC-FT | 1230 | 4040 | 7290 | 3860 | 1540 | 842 | 2350 | 5470 | 2800 | 1360 | 665 | 472 |

CAL YR 1975 TOTAL 17033.8 MEAN 46.7 MAX 580 MIN 3.6 CFSM 7.78 IN 105.59 AC-FT 33790
WTR YR 1976 TOTAL 16099.7 MEAN 44.0 MAX 580 MIN 3.6 CFSM 7.33 IN 99.80 AC-FT 31930

## 12114500 CEDAR RIVER BELOW BEAR CREEK, NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°20'30", long 121°32'50", in SE¼SE¼ sec.32, T.22 N., R.10 E., King County, Hydrologic Unit 17110012, on right bank 500 ft (152 m) downstream from Bear Creek and 12.2 mi (19.6 km) southeast of Cedar Falls.

DRAINAGE AREA.--25.4 mi² (65.8 km²).

PERIOD OF RECORD.--October 1945 to December 1963, October 1975 to September 1976.

REVISED RECORDS.--WSP 1716: 1956-57(M), 1959(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,880 ft (573 m) from topographic map. Prior to Sept. 16, 1960, at site 90 ft (27.4 m) upstream at datum 2.35 ft (0.714 m) higher.

REMARKS.--Records good except those during period of no gage-height record, Nov. 21 to Dec. 8, which are fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--19 years (water years 1946-63, 1976), 181 ft³/s (5.126 m³/s), 131,100 acre-ft/yr (162 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,620 ft³/s (215.8 m³/s) Nov. 22, 1959, gage height, 6.98 ft (2.128 m) site and datum then in use, from rating curve extended above 890 ft³/s (25.2 m³/s) on basis of slope-area measurement of peak flow; minimum, 12 ft³/s (0.34 m³/s) Nov. 27, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.8 m³/s) and maximum (*) from peak stage indicator, from rating curve extended above 510 ft³/s (14.4 m³/s) on basis of slope-area measurement at gage height 9.37 ft (2.856 m):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 2 | 1700 | 710 | 20.1 | 4.55 | 1.387 | Jan. 15 | 2400 | 1,230 | 34.8 | 5.66 | 1.725 |
| Dec. 2 | unknown | *3,830 | 108 | *7.67 | 2.338 | | | | | | |

Minimum daily discharge, 22 ft³/s (0.62 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 23 | 408 | 1700 | 255 | 225 | 74 | 74 | 475 | 183 | 217 | 68 | 55 |
| 2 | 22 | 578 | 2300 | 213 | 208 | 71 | 71 | 621 | 169 | 198 | 65 | 53 |
| 3 | 26 | 626 | 2100 | 188 | 195 | 68 | 77 | 479 | 157 | 198 | 63 | 51 |
| 4 | 39 | 519 | 1400 | 203 | 178 | 67 | 90 | 398 | 151 | 203 | 61 | 49 |
| 5 | 35 | 406 | 750 | 216 | 160 | 63 | 119 | 360 | 149 | 208 | 59 | 52 |
| 6 | 45 | 322 | 470 | 183 | 149 | 62 | 178 | 344 | 165 | 239 | 60 | 69 |
| 7 | 31 | 274 | 450 | 165 | 137 | 60 | 190 | 372 | 191 | 242 | 80 | 63 |
| 8 | 30 | 225 | 520 | 163 | 127 | 59 | 300 | 473 | 231 | 274 | 65 | 55 |
| 9 | 33 | 186 | 451 | 149 | 119 | 60 | 294 | 554 | 255 | 208 | 61 | 52 |
| 10 | 40 | 160 | 372 | 144 | 112 | 67 | 318 | 589 | 263 | 176 | 58 | 50 |
| 11 | 30 | 139 | 306 | 173 | 119 | 64 | 355 | 496 | 236 | 165 | 55 | 49 |
| 12 | 28 | 126 | 255 | 144 | 198 | 62 | 300 | 402 | 229 | 157 | 52 | 59 |
| 13 | 27 | 127 | 219 | 127 | 178 | 59 | 249 | 421 | 206 | 147 | 51 | 52 |
| 14 | 28 | 251 | 193 | 151 | 163 | 59 | 213 | 403 | 186 | 147 | 51 | 51 |
| 15 | 56 | 387 | 208 | 750 | 149 | 59 | 190 | 366 | 222 | 154 | 60 | 50 |
| 16 | 47 | 302 | 180 | 999 | 160 | 62 | 163 | 407 | 415 | 168 | 62 | 47 |
| 17 | 50 | 238 | 160 | 636 | 153 | 77 | 146 | 399 | 360 | 160 | 59 | 46 |
| 18 | 76 | 193 | 146 | 490 | 139 | 92 | 139 | 324 | 376 | 142 | 57 | 45 |
| 19 | 185 | 165 | 133 | 369 | 125 | 88 | 137 | 284 | 369 | 126 | 60 | 43 |
| 20 | 157 | 145 | 121 | 294 | 115 | 82 | 188 | 252 | 315 | 118 | 123 | 41 |
| 21 | 144 | 132 | 114 | 240 | 110 | 77 | 165 | 244 | 278 | 109 | 97 | 40 |
| 22 | 135 | 125 | 109 | 213 | 105 | 83 | 153 | 257 | 240 | 102 | 86 | 40 |
| 23 | 125 | 250 | 107 | 195 | 102 | 82 | 142 | 255 | 212 | 104 | 79 | 39 |
| 24 | 112 | 620 | 135 | 173 | 100 | 95 | 165 | 245 | 206 | 105 | 74 | 38 |
| 25 | 152 | 520 | 151 | 155 | 95 | 90 | 158 | 245 | 212 | 99 | 81 | 37 |
| 26 | 155 | 680 | 460 | 149 | 88 | 82 | 146 | 244 | 191 | 93 | 73 | 35 |
| 27 | 135 | 430 | 404 | 460 | 85 | 77 | 153 | 304 | 183 | 85 | 68 | 34 |
| 28 | 143 | 300 | 309 | 383 | 82 | 73 | 183 | 277 | 216 | 80 | 65 | 34 |
| 29 | 409 | 240 | 408 | 324 | 77 | 68 | 243 | 243 | 247 | 77 | 62 | 32 |
| 30 | 556 | 250 | 424 | 279 | --- | 74 | 334 | 226 | 234 | 73 | 59 | 32 |
| 31 | 403 | --- | 321 | 246 | --- | 83 | --- | 202 | --- | 70 | 57 | --- |
| TOTAL | 3477 | 9324 | 15376 | 8829 | 3953 | 2239 | 5633 | 11161 | 7047 | 4644 | 2071 | 1393 |
| MEAN | 112 | 311 | 496 | 285 | 136 | 72.2 | 188 | 360 | 235 | 150 | 66.8 | 46.4 |
| MAX | 556 | 680 | 2300 | 999 | 225 | 95 | 355 | 621 | 415 | 274 | 123 | 69 |
| MIN | 22 | 125 | 107 | 127 | 77 | 59 | 71 | 202 | 149 | 70 | 51 | 32 |
| CFSM | 4.41 | 12.2 | 19.5 | 11.2 | 5.35 | 2.84 | 7.40 | 14.2 | 9.25 | 5.91 | 2.63 | 1.83 |
| IN. | 5.09 | 13.66 | 22.52 | 12.93 | 5.79 | 3.28 | 8.25 | 16.35 | 10.32 | 6.80 | 3.03 | 2.04 |
| AC-FT | 6900 | 18490 | 30500 | 17510 | 7840 | 4440 | 11170 | 22140 | 13980 | 9210 | 4110 | 2760 |

WTR YR 1976 TOTAL 75147 MEAN 205 MAX 2300 MIN 22 CFSM 8.07 IN 110.05 AC-FT 149100

## 12115000 CEDAR RIVER NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°22'13", long 121°37'26", in SE¼SW¼ sec.23, T.22 N., R.9 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on left bank 1.4 mi (2.3 km) upstream from Chester Morse Lake, 8.3 mi (13.4 km) southeast of Cedar Falls, and at mile 43.5 (70.0 km).

DRAINAGE AREA.--40.7 mi² (105.4 km²).

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1286: 1946-48, 1950(P), 1951. WSP 1516: 1946(M), 1947-48(P), 1950-51(M), 1953-54(P). 1955(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,560 ft (475 m), from topographic map. Prior to Oct. 26, 1957, at site 80 ft (24 m) downstream at same datum.

REMARKS.--Records good except those during periods of backwater from Chester Morse Lake, Dec. 2-6 and May 20 to June 23, which are fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--31 years, 277 ft³/s (7.845 m³/s), 92.42 in/yr (2,347 mm/yr) 200,700 acre-ft/yr (247 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,490 ft³/s (269 m³/s) Nov. 22, 1959, gage height, 11.34 ft (3.456 m), from high-water mark in well, from rating curve extended above 4,300 ft³/s (122 m³/s), on basis of slope-area measurements at gage heights 10.16 ft (3.097 m) and 11.34 ft (3.456 m); maximum gage height, 11.4 ft (3.47 m) Feb. 11, 1951, backwater from Chester Morse Lake; minimum discharge, 20 ft³/s (0.57 m³/s) Nov. 30 to Dec. 1, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft³/s (34.0 m³/s) and maximum(*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 24 | 1500 | 1,290 | 36.5 | 5.84 | 1.780 | Dec. 4 | 0600 | a | | *10.73 | 3.270 |
| Dec. 2 | unknown | *unknown | ---- | unknown | ---- | Jan. 15 | 2400 | 2,150 | 60.9 | 7.01 | 2.137 |

Maximum daily discharge, 3,600 ft (102 m³/s Dec. 2; minimum discharge, 35 cfs (0.991 m³/s) Oct. 2, 3; minimum gage height, 2.27 ft (0.692 m) Sept. 26, 27, 28, 30.

a Backwater from Chester Morse Lake.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 37 | 610 | 2580 | 394 | 324 | 115 | 135 | 652 | 270 | 285 | 89 | 77 |
| 2 | 36 | 815 | 3600 | 321 | 298 | 109 | 127 | 856 | 250 | 260 | 86 | 75 |
| 3 | 41 | 952 | 3300 | 275 | 280 | 103 | 130 | 664 | 230 | 255 | 84 | 72 |
| 4 | 62 | 750 | 2200 | 309 | 255 | 96 | 144 | 564 | 220 | 260 | 81 | 70 |
| 5 | 55 | 584 | 1150 | 387 | 230 | 94 | 185 | 516 | 210 | 260 | 78 | 76 |
| 6 | 71 | 480 | 750 | 318 | 213 | 92 | 288 | 484 | 240 | 288 | 80 | 110 |
| 7 | 49 | 416 | 680 | 283 | 199 | 90 | 300 | 520 | 280 | 298 | 112 | 99 |
| 8 | 48 | 351 | 770 | 288 | 187 | 89 | 453 | 648 | 330 | 348 | 94 | 83 |
| 9 | 50 | 291 | 735 | 263 | 175 | 90 | 446 | 750 | 360 | 275 | 84 | 77 |
| 10 | 65 | 250 | 604 | 258 | 161 | 102 | 453 | 830 | 370 | 233 | 88 | 74 |
| 11 | 49 | 216 | 488 | 339 | 173 | 105 | 544 | 735 | 330 | 217 | 75 | 72 |
| 12 | 44 | 196 | 401 | 270 | 288 | 98 | 456 | 590 | 310 | 211 | 71 | 86 |
| 13 | 43 | 187 | 345 | 230 | 265 | 95 | 381 | 624 | 280 | 197 | 70 | 77 |
| 14 | 44 | 386 | 298 | 268 | 245 | 93 | 327 | 612 | 250 | 193 | 72 | 76 |
| 15 | 90 | 592 | 327 | 1350 | 228 | 93 | 298 | 540 | 320 | 197 | 87 | 74 |
| 16 | 76 | 496 | 285 | 1650 | 273 | 96 | 253 | 604 | 540 | 209 | 93 | 71 |
| 17 | 82 | 393 | 258 | 994 | 270 | 118 | 230 | 628 | 480 | 205 | 87 | 69 |
| 18 | 125 | 318 | 233 | 775 | 250 | 147 | 221 | 528 | 510 | 185 | 83 | 68 |
| 19 | 240 | 270 | 215 | 600 | 215 | 149 | 213 | 476 | 480 | 165 | 86 | 64 |
| 20 | 258 | 238 | 199 | 468 | 197 | 139 | 298 | 400 | 420 | 155 | 181 | 61 |
| 21 | 228 | 211 | 183 | 387 | 179 | 129 | 275 | 380 | 370 | 142 | 151 | 59 |
| 22 | 230 | 200 | 173 | 348 | 167 | 135 | 253 | 385 | 330 | 134 | 133 | 59 |
| 23 | 211 | 379 | 173 | 312 | 161 | 136 | 230 | 385 | 310 | 133 | 121 | 58 |
| 24 | 180 | 940 | 230 | 275 | 161 | 209 | 265 | 370 | 280 | 133 | 112 | 57 |
| 25 | 243 | 790 | 268 | 248 | 151 | 195 | 260 | 365 | 290 | 127 | 121 | 55 |
| 26 | 288 | 1030 | 765 | 235 | 139 | 165 | 238 | 365 | 255 | 121 | 109 | 53 |
| 27 | 235 | 745 | 684 | 692 | 133 | 147 | 238 | 450 | 243 | 113 | 101 | 51 |
| 28 | 230 | 504 | 496 | 600 | 129 | 141 | 270 | 400 | 278 | 104 | 95 | 53 |
| 29 | 615 | 372 | 612 | 496 | 121 | 130 | 348 | 360 | 327 | 101 | 88 | 53 |
| 30 | 946 | 383 | 672 | 415 | --- | 132 | 476 | 330 | 300 | 96 | 84 | 52 |
| 31 | 695 | --- | 504 | 366 | --- | 145 | --- | 310 | --- | 92 | 81 | --- |
| TOTAL | 5666 | 14345 | 24178 | 14414 | 6067 | 3777 | 8735 | 16321 | 9663 | 5992 | 2969 | 2081 |
| MEAN | 183 | 478 | 780 | 465 | 209 | 122 | 291 | 526 | 322 | 193 | 95.8 | 69.4 |
| MAX | 946 | 1030 | 3600 | 1650 | 324 | 209 | 544 | 856 | 540 | 348 | 181 | 110 |
| MIN | 36 | 187 | 173 | 230 | 121 | 89 | 127 | 310 | 210 | 92 | 70 | 51 |
| CFSM | 4.50 | 11.7 | 19.2 | 11.4 | 5.14 | 3.00 | 7.15 | 12.9 | 7.91 | 4.74 | 2.35 | 1.71 |
| IN. | 5.18 | 13.11 | 22.10 | 13.17 | 5.55 | 3.45 | 7.98 | 14.92 | 8.83 | 5.48 | 2.71 | 1.90 |
| AC-FT | 11240 | 28450 | 47960 | 28590 | 12030 | 7490 | 17330 | 32370 | 19170 | 11890 | 5890 | 4130 |

CAL YR 1975 TOTAL 120053 MEAN 329 MAX 3600 MIN 36 CFSM 8.08 IN 109.73 AC-FT 238100
WTR YR 1976 TOTAL 114208 MEAN 312 MAX 3600 MIN 36 CFSM 7.67 IN 104.38 AC-FT 226500

## 12115500 REX RIVER NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°21'03", long 121°39'43", in NE¼NW¼ sec.33, T.22 N., R.9 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on right bank 3.0 mi (4.8 km) upstream from mouth and Chester Morse Lake and 7.5 mi (12.1 km) southeast of Cedar Falls.

DRAINAGE AREA.--13.4 mi² (34.7 km²).

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1286: 1946, 1948(P), 1949(M), 1950(P), 1952(M). WSP 1446: 1946(M), 1951, 1953-55(M). WSP 1932: Drainage area. WRD Wash. 1974: 1973.

GAGE.--Water-stage recorder. Altitude of gage is 1,600 ft (488 m), from topographic map.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--31 years, 107 ft³/s (3.030 m³/s), 108.44 in/yr (2,754 mm/yr), 77,520 acre-ft/yr (95.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,200 ft³/s (119 m³/s) Nov. 22, 1959, gage height, 8.20 ft (2.499 m) from rating curve extended above 1,600 ft³/s (45.3 m³/s) on basis of contracted-opening measurement at gage height 7.19 ft (2.192 m) and slope-area measurement of peak flow; maximum gage height, 9.31 ft (2.838 m) Nov. 19, 1962, backwater from debris; minimum discharge, 4.3 ft³/s (0.12 m³/s) Nov. 29, 1952, gage height, 2.43 ft (0.741 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.8 m³/s):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 24 | 1100 | 809 | 22.9 | 5.57 | 1.698 | Jan. 15 | 1500 | 1,740 | 49.3 | 6.66 | 2.030 |
| Dec. 1 | 1600 | *2,600 | 73.6 | *7.42 | 2.262 | | | | | | |

Minimum discharge, 11 ft³/s (0.31 m³/s) Oct. 1, 2, 3, gage height, 3.26 ft (0.994 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 332 | 1800 | 140 | 120 | 40 | 51 | 389 | 90 | 82 | 21 | 24 |
| 2 | 11 | 434 | 1940 | 108 | 108 | 37 | 47 | 438 | 82 | 68 | 20 | 23 |
| 3 | 19 | 384 | 1590 | 91 | 97 | 37 | 49 | 288 | 77 | 67 | 20 | 23 |
| 4 | 25 | 288 | 823 | 235 | 83 | 36 | 57 | 228 | 73 | 68 | 20 | 20 |
| 5 | 41 | 213 | 320 | 256 | 74 | 35 | 87 | 228 | 77 | 65 | 20 | 33 |
| 6 | 29 | 183 | 204 | 168 | 69 | 33 | 142 | 209 | 90 | 65 | 20 | 51 |
| 7 | 25 | 168 | 189 | 127 | 64 | 33 | 150 | 244 | 100 | 67 | 40 | 39 |
| 8 | 21 | 140 | 352 | 140 | 59 | 32 | 228 | 308 | 111 | 102 | 29 | 31 |
| 9 | 28 | 115 | 268 | 115 | 54 | 32 | 198 | 328 | 116 | 70 | 26 | 28 |
| 10 | 25 | 97 | 201 | 122 | 50 | 37 | 225 | 320 | 116 | 62 | 23 | 27 |
| 11 | 21 | 83 | 150 | 155 | 69 | 36 | 248 | 256 | 104 | 58 | 22 | 26 |
| 12 | 19 | 74 | 117 | 111 | 174 | 34 | 174 | 224 | 123 | 57 | 21 | 39 |
| 13 | 19 | 93 | 97 | 87 | 130 | 33 | 133 | 240 | 102 | 51 | 22 | 29 |
| 14 | 30. | 268 | 85 | 204 | 106 | 33 | 113 | 209 | 90 | 47 | 23 | 32 |
| 15 | 48 | 336 | 145 | 1160 | 93 | 33 | 98 | 206 | 144 | 46 | 35 | 30 |
| 16 | 39 | 219 | 108 | 781 | 160 | 36 | 80 | 268 | 300 | 44 | 33 | 27 |
| 17 | 51 | 155 | 91 | 384 | 155 | 50 | 73 | 224 | 198 | 41 | 32 | 26 |
| 18 | 72 | 120 | 80 | 300 | 132 | 72 | 73 | 165 | 181 | 39 | 32 | 26 |
| 19 | 162 | 100 | 72 | 207 | 102 | 65 | 73 | 144 | 155 | 36 | 39 | 24 |
| 20 | 115 | 83 | 67 | 157 | 84 | 60 | 144 | 138 | 128 | 35 | 109 | 23 |
| 21 | 113 | 74 | 62 | 125 | 72 | 54 | 111 | 138 | 109 | 33 | 62 | 23 |
| 22 | 103 | 72 | 56 | 122 | 65 | 56 | 92 | 136 | 92 | 31 | 51 | 21 |
| 23 | 90 | 348 | 64 | 115 | 62 | 54 | 82 | 120 | 82 | 30 | 45 | 21 |
| 24 | 77 | 535 | 152 | 97 | 59 | 78 | 118 | 128 | 84 | 28 | 40 | 20 |
| 25 | 186 | 332 | 177 | 85 | 54 | 76 | 100 | 138 | 84 | 27 | 46 | 19 |
| 26 | 170 | 452 | 510 | 83 | 50 | 62 | 88 | 136 | 73 | 27 | 37 | 18 |
| 27 | 126 | 288 | 308 | 384 | 47 | 53 | 92 | 162 | 72 | 25 | 35 | 17 |
| 28 | 128 | 189 | 222 | 260 | 46 | 49 | 116 | 128 | 79 | 24 | 32 | 16 |
| 29 | 445 | 140 | 340 | 201 | 42 | 43 | 178 | 116 | 79 | 23 | 29 | 16 |
| 30 | 500 | 304 | 288 | 157 | --- | 47 | 280 | 118 | 73 | 23 | 27 | 16 |
| 31 | 332 | --- | 192 | 132 | --- | 59 | --- | 98 | --- | 22 | 26 | --- |
| TOTAL | 3082 | 6619 | 11070 | 6809 | 2480 | 1435 | 3700 | 6472 | 3284 | 1463 | 1037 | 768 |
| MEAN | 99.4 | 221 | 357 | 220 | 85.5 | 46.3 | 123 | 209 | 109 | 47.2 | 33.5 | 25.6 |
| MAX | 500 | 535 | 1940 | 1160 | 174 | 78 | 280 | 438 | 300 | 102 | 109 | 51 |
| MIN | 11 | 72 | 56 | 83 | 42 | 32 | 47 | 98 | 72 | 22 | 20 | 16 |
| CFSM | 7.42 | 16.5 | 26.6 | 16.4 | 6.38 | 3.46 | 9.18 | 15.6 | 8.13 | 3.52 | 2.50 | 1.91 |
| IN. | 8.56 | 18.37 | 30.73 | 18.90 | 6.88 | 3.98 | 10.27 | 17.97 | 9.12 | 4.06 | 2.88 | 2.13 |
| AC-FT | 6110 | 13130 | 21960 | 13510 | 4920 | 2850 | 7340 | 12840 | 6510 | 2900 | 2060 | 1520 |

CAL YR 1975 TOTAL 48983 MEAN 134 MAX 1940 MIN 11 CFSM 10.0 IN 135.97 AC-FT 97160
WTR YR 1976 TOTAL 48219 MEAN 132 MAX 1940 MIN 11 CFSM 9.85 IN 133.85 AC-FT 95640

## 12116100 CANYON CREEK NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°25'11", long 121°45'55", in NW¼SE¼ sec.3, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on right bank 400 ft (122 m) upstream from mouth and 0.8 mi (1.3 km) east of Cedar Falls.

DRAINAGE AREA.--0.19 mi$^2$ (0.49 km$^2$).

PERIOD OF RECORD.--May 1945 to current year. Prior to October 1960 published in WSP 1932.

GAGE.--Water-stage recorder and wooden control. Altitude of gage is 1,040 ft (317 m), from topographic map.

REMARKS.--Records good. No regulation or diversion above station. Flow is mostly seepage from Chester Morse Lake.

AVERAGE DISCHARGE.--31 years, 16.6 ft$^3$/s (0.470 m$^3$/s), 12,030 acre-ft/yr (14.8 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 131 ft$^3$/s (3.71 m$^3$/s) Dec. 7, 1975, gage height, 2.22 ft (0.677 m); minimum, 0.3 ft$^3$/s (0.008 m$^3$/s) for many days during 1953-55, 1958 and 1961 water years, Oct. 28, 29, 1966, and Nov. 27, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 131 ft$^3$/s (3.71 m$^3$/s) Dec. 7, gage height, 2.22 ft (0.677 m); minimum, 2.1 ft$^3$/s (0.059 m$^3$/s), part or all of each day Oct. 19-21, 23-25, Sept. 30; minimum gage height, 0.72 ft (0.219 m) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.4 | 2.5 | 45 | 21 | 21 | 11 | 3.6 | 12 | 61 | 37 | 16 | 12 |
| 2 | 4.4 | 2.7 | 49 | 21 | 21 | 11 | 3.6 | 13 | 62 | 35 | 16 | 12 |
| 3 | 4.4 | 2.9 | 54 | 21 | 21 | 11 | 3.6 | 13 | 62 | 34 | 16 | 12 |
| 4 | 4.1 | 3.4 | 68 | 22 | 20 | 10 | 3.6 | 14 | 61 | 32 | 15 | 12 |
| 5 | 4.1 | 3.9 | 85 | 23 | 20 | 9.2 | 3.4 | 15 | 60 | 31 | 15 | 12 |
| 6 | 3.9 | 5.0 | 114 | 21 | 18 | 8.5 | 3.4 | 17 | 58 | 29 | 15 | 12 |
| 7 | 3.6 | 6.3 | 120 | 21 | 18 | 8.1 | 3.4 | 19 | 58 | 27 | 15 | 11 |
| 8 | 3.4 | 7.7 | 118 | 22 | 17 | 7.7 | 3.4 | 21 | 58 | 27 | 15 | 11 |
| 9 | 3.1 | 9.2 | 115 | 21 | 17 | 7.4 | 3.4 | 24 | 56 | 25 | 15 | 10 |
| 10 | 2.9 | 9.7 | 110 | 21 | 16 | 7.4 | 3.4 | 27 | 55 | 24 | 15 | 9.2 |
| 11 | 2.9 | 12 | 99 | 21 | 16 | 7.0 | 3.4 | 30 | 55 | 23 | 14 | 8.8 |
| 12 | 2.7 | 14 | 87 | 20 | 15 | 6.7 | 3.6 | 34 | 54 | 23 | 14 | 8.5 |
| 13 | 2.5 | 15 | 81 | 20 | 15 | 6.7 | 3.9 | 39 | 54 | 22 | 14 | 7.7 |
| 14 | 2.5 | 17 | 74 | 21 | 14 | 6.3 | 3.9 | 43 | 54 | 21 | 14 | 7.4 |
| 15 | 2.3 | 18 | 66 | 23 | 14 | 6.0 | 4.1 | 48 | 54 | 21 | 14 | 6.7 |
| 16 | 2.3 | 19 | 59 | 21 | 14 | 5.7 | 4.7 | 52 | 55 | 21 | 14 | 6.3 |
| 17 | 2.3 | 20 | 52 | 21 | 14 | 5.4 | 5.0 | 54 | 54 | 20 | 14 | 6.0 |
| 18 | 2.3 | 21 | 47 | 23 | 13 | 5.4 | 5.4 | 57 | 55 | 20 | 14 | 5.4 |
| 19 | 2.3 | 22 | 41 | 25 | 13 | 5.0 | 6.0 | 59 | 55 | 20 | 13 | 5.0 |
| 20 | 2.1 | 23 | 38 | 28 | 13 | 4.7 | 6.7 | 60 | 55 | 19 | 13 | 4.7 |
| 21 | 2.1 | 25 | 35 | 30 | 12 | 4.7 | 7.0 | 60 | 55 | 19 | 13 | 4.4 |
| 22 | 2.3 | 25 | 34 | 31 | 12 | 4.4 | 7.4 | 61 | 54 | 18 | 13 | 4.1 |
| 23 | 2.2 | 26 | 32 | 31 | 12 | 4.4 | 7.7 | 61 | 54 | 18 | 13 | 3.6 |
| 24 | 2.1 | 27 | 30 | 31 | 12 | 5.7 | 8.5 | 62 | 53 | 18 | 13 | 3.4 |
| 25 | 2.3 | 28 | 27 | 30 | 12 | 4.4 | 8.8 | 61 | 52 | 17 | 13 | 3.1 |
| 26 | 2.3 | 29 | 27 | 28 | 11 | 4.1 | 9.2 | 61 | 48 | 17 | 13 | 2.9 |
| 27 | 2.3 | 31 | 24 | 28 | 11 | 3.9 | 10 | 61 | 46 | 17 | 13 | 2.9 |
| 28 | 2.5 | 31 | 22 | 26 | 11 | 3.9 | 11 | 61 | 43 | 17 | 12 | 2.7 |
| 29 | 3.4 | 34 | 22 | 25 | 11 | 3.9 | 11 | 61 | 40 | 16 | 12 | 2.3 |
| 30 | 3.4 | 39 | 22 | 23 | --- | 3.9 | 12 | 61 | 39 | 16 | 12 | 2.1 |
| 31 | 2.9 | --- | 21 | 23 | --- | 3.6 | --- | 60 | --- | 16 | 12 | --- |
| TOTAL | 90.3 | 529.3 | 1818 | 743 | 434 | 197.1 | 174.1 | 1321 | 1620 | 700 | 430 | 211.2 |
| MEAN | 2.91 | 17.6 | 58.6 | 24.0 | 15.0 | 6.36 | 5.80 | 42.6 | 54.0 | 22.6 | 13.9 | 7.04 |
| MAX | 4.4 | 39 | 120 | 31 | 21 | 11 | 12 | 62 | 62 | 37 | 16 | 12 |
| MIN | 2.1 | 2.5 | 21 | 20 | 11 | 3.6 | 3.4 | 12 | 39 | 16 | 12 | 2.1 |
| AC-FT | 179 | 1050 | 3610 | 1470 | 861 | 391 | 345 | 2620 | 3210 | 1390 | 853 | 419 |

CAL YR 1975 TOTAL 9035.9 MEAN 24.8 MAX 120 MIN 2.1 AC-FT 17920
WTR YR 1976 TOTAL 8268.0 MEAN 22.6 MAX 120 MIN 2.1 AC-FT 16400

## 12116500 CEDAR RIVER AT CEDAR FALLS, WA

LOCATION.--Lat 47°25'02", long 121°47'27", in SW¼SE¼ sec.4, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on right bank 0.5 mi (0.8 km) downstream from Seattle municipal powerplant at Cedar Falls, 4.0 mi (6.4 km) downstream from Chester Morse Lake, and at mile 33.2 (53.4 km).

DRAINAGE AREA.--84.2 mi$^2$ (218.1 km$^2$).

PERIOD OF RECORD.--April 1914 to current year.

REVISED RECORDS.--WSP 722: 1930. WSP 1386: 1934(M), drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 910 ft (277 m), from river-profile map.

REMARKS.--Records good except those for the period of no gage-height record, which are fair. All artificially diverted water returned to river above station. Some regulation by Chester Morse Lake for power.

AVERAGE DISCHARGE.--62 years, 325 ft$^3$/s (9.204 m$^3$/s), 235,500 acre-ft/yr (290 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,860 ft$^3$/s (194 m$^3$/s) Dec. 3, 1975, gage height, 11.68 ft (3.560 m); no flow for part of Nov. 25, 1917, Aug. 18, 1923; minimum daily, 0.5 ft$^3$/s (0.014 m$^3$/s) Oct. 6, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,860 ft$^3$/s (194 m$^3$/s) Dec. 3, gage height, 11.68 ft (3.560 m); minimum, 34 ft$^3$/s (0.96 m$^3$/s) Aug. 30, 31, Sept. 1, 2; minimum gage height, 4.84 ft (1.475 m) Aug. 31, Sept. 1, 2, result of regulation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 312 | 355 | 4500 | 820 | 748 | 676 | 97 | 103 | 117 | 724 | 81 | 34 |
| 2 | 157 | 353 | 5200 | 784 | 718 | 560 | 87 | 117 | 120 | 676 | 72 | 48 |
| 3 | 76 | 351 | 6500 | 736 | 694 | 525 | 83 | 80 | 103 | 520 | 78 | 455 |
| 4 | 56 | 348 | 6300 | 724 | 694 | 197 | 83 | 58 | 101 | 694 | 78 | 652 |
| 5 | 56 | 349 | 4740 | 760 | 694 | 185 | 83 | 64 | 145 | 700 | 74 | 652 |
| 6 | 58 | 346 | 3350 | 754 | 694 | 229 | 93 | 59 | 142 | 712 | 74 | 664 |
| 7 | 76 | 348 | 2480 | 736 | 688 | 167 | 78 | 59 | 125 | 505 | 62 | 500 |
| 8 | 95 | 349 | 2110 | 712 | 652 | 294 | 107 | 62 | 93 | 425 | 37 | 430 |
| 9 | 85 | 347 | 1930 | 700 | 440 | 465 | 105 | 65 | 81 | 243 | 44 | 294 |
| 10 | 87 | 346 | 1800 | 700 | 688 | 155 | 97 | 318 | 80 | 179 | 58 | 354 |
| 11 | 89 | 343 | 1550 | 706 | 688 | 243 | 107 | 730 | 99 | 176 | 64 | 346 |
| 12 | 89 | 345 | 1390 | 694 | 688 | 314 | 66 | 730 | 140 | 286 | 65 | 306 |
| 13 | 92 | 347 | 1310 | 694 | 688 | 262 | 40 | 730 | 140 | 105 | 67 | 298 |
| 14 | 92 | 368 | 1080 | 712 | 682 | 173 | 44 | 610 | 103 | 103 | 67 | 270 |
| 15 | 93 | 380 | 941 | 934 | 688 | 274 | 93 | 530 | 215 | 155 | 71 | 110 |
| 16 | 93 | 369 | 820 | 1810 | 700 | 200 | 81 | 590 | 445 | 161 | 59 | 49 |
| 17 | 92 | 363 | 760 | 2000 | 565 | 450 | 358 | 706 | 590 | 652 | 50 | 48 |
| 18 | 108 | 350 | 694 | 1890 | 470 | 87 | 170 | 520 | 754 | 570 | 52 | 48 |
| 19 | 100 | 337 | 646 | 1670 | 382 | 142 | 374 | 338 | 754 | 676 | 38 | 45 |
| 20 | 99 | 346 | 628 | 1390 | 378 | 99 | 99 | 282 | 748 | 682 | 44 | 44 |
| 21 | 104 | 356 | 622 | 1160 | 378 | 81 | 127 | 262 | 748 | 93 | 43 | 44 |
| 22 | 104 | 360 | 595 | 997 | 374 | 91 | 239 | 254 | 742 | 83 | 40 | 44 |
| 23 | 99 | 384 | 610 | 899 | 366 | 95 | 164 | 258 | 736 | 80 | 39 | 59 |
| 24 | 169 | 440 | 610 | 850 | 366 | 107 | 107 | 258 | 736 | 76 | 38 | 80 |
| 25 | 221 | 622 | 616 | 772 | 366 | 101 | 103 | 229 | 724 | 78 | 37 | 122 |
| 26 | 226 | 880 | 652 | 724 | 500 | 93 | 236 | 185 | 736 | 76 | 36 | 135 |
| 27 | 220 | 1200 | 646 | 778 | 694 | 362 | 97 | 232 | 730 | 78 | 36 | 132 |
| 28 | 223 | 1150 | 640 | 857 | 694 | 370 | 65 | 194 | 730 | 71 | 35 | 152 |
| 29 | 269 | 1100 | 682 | 820 | 688 | 410 | 49 | 117 | 724 | 87 | 35 | 158 |
| 30 | 291 | 1350 | 832 | 826 | --- | 152 | 69 | 125 | 724 | 71 | 34 | 158 |
| 31 | 331 | --- | 899 | 796 | --- | 490 | --- | 117 | --- | 76 | 34 | --- |
| TOTAL | 4262 | 14882 | 56133 | 29405 | 17065 | 8049 | 3601 | 8982 | 12425 | 9813 | 1642 | 6731 |
| MEAN | 137 | 496 | 1811 | 949 | 588 | 260 | 120 | 290 | 414 | 317 | 53.0 | 224 |
| MAX | 331 | 1350 | 6500 | 2000 | 748 | 676 | 374 | 730 | 754 | 724 | 81 | 664 |
| MIN | 56 | 337 | 595 | 694 | 366 | 81 | 40 | 58 | 80 | 71 | 34 | 34 |
| CFSM | 1.63 | 5.89 | 21.5 | 11.3 | 6.98 | 3.09 | 1.43 | 3.44 | 4.92 | 3.76 | .63 | 2.66 |
| IN. | 1.88 | 6.57 | 24.80 | 12.99 | 7.54 | 3.56 | 1.59 | 3.97 | 5.49 | 4.34 | .73 | 2.97 |
| AC-FT | 8450 | 29520 | 111300 | 58320 | 33850 | 15970 | 7140 | 17820 | 24640 | 19460 | 3260 | 13350 |

CAL YR 1975 TOTAL 184446.4 MEAN 505 MAX 6500 MIN 7.7 CFSM 6.00 IN 81.49 AC-FT 365800
WTR YR 1976 TOTAL 172990.0 MEAN 473 MAX 6500 MIN 34 CFSM 5.62 IN 76.43 AC-FT 343100

NOTE.--No gage-height record Nov. 26 to Dec. 4.

## 12117000 TAYLOR CREEK NEAR SELLECK, WA

LOCATION.--Lat 47°23'12", long 121°50'42", in NW¼NW¼ sec.19, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on left bank 0.6 mi (1.0 km) upstream from mouth and 1.3 mi (2.1 km) northeast of Selleck.

DRAINAGE AREA.--17.2 mi$^2$ (44.5 km$^2$).

PERIOD OF RECORD.--June to October 1945, August 1956 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 940 ft (287 m), from topographic map. June to October 1945 on right bank 350 ft (107 km) downstream at different datum.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--20 years, 106 ft$^3$/s (3.002 m$^3$/s), 83.69 in/yr (2,126 mm/yr), 76,800 acre-ft/yr (94.7 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,730 ft$^3$/s (77.3 m$^3$/s) Jan. 29, 1965, gage height, 5.78 ft (1.762 m) from rating curve extended above 1,100 ft$^3$/s (31.2 m$^3$/s), on basis of slope-area measurement of peak flow; minimum, 16 ft$^3$/s (0.45 m$^3$/s) Oct. 2-7, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,040 ft$^3$/s (29.5 m$^3$/s) Dec. 3, gage height, 4.43 ft (1.350 m); minimum, 22 ft$^3$/s (0.62 m$^3$/s) Oct.1, 2, 3, gage height, 1.89 ft (0.576 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 23 | 219 | 590 | 209 | 166 | 105 | 98 | 151 | 65 | 56 | 29 | 32 |
| 2 | 22 | 207 | 739 | 187 | 156 | 100 | 93 | 184 | 66 | 53 | 29 | 31 |
| 3 | 30 | 182 | 697 | 176 | 149 | 96 | 93 | 147 | 62 | 49 | 29 | 30 |
| 4 | 35 | 147 | 535 | 285 | 140 | 93 | 94 | 134 | 58 | 50 | 27 | 29 |
| 5 | 43 | 128 | 388 | 320 | 134 | 91 | 103 | 142 | 56 | 46 | 27 | 45 |
| 6 | 40 | 128 | 299 | 248 | 129 | 89 | 129 | 129 | 54 | 44 | 29 | 72 |
| 7 | 37 | 130 | 288 | 221 | 123 | 87 | 125 | 125 | 53 | 46 | 67 | 53 |
| 8 | 35 | 131 | 342 | 248 | 119 | 86 | 145 | 127 | 53 | 83 | 53 | 44 |
| 9 | 39 | 114 | 299 | 221 | 115 | 86 | 140 | 125 | 50 | 63 | 40 | 39 |
| 10 | 38 | 104 | 257 | 233 | 109 | 98 | 138 | 121 | 49 | 56 | 35 | 35 |
| 11 | 31 | 95 | 227 | 285 | 121 | 94 | 154 | 113 | 50 | 54 | 32 | 34 |
| 12 | 29 | 89 | 209 | 230 | 161 | 87 | 134 | 103 | 58 | 53 | 31 | 41 |
| 13 | 29 | 105 | 195 | 203 | 131 | 86 | 123 | 100 | 54 | 49 | 31 | 36 |
| 14 | 29 | 221 | 184 | 370 | 125 | 84 | 121 | 96 | 49 | 46 | 32 | 39 |
| 15 | 45 | 243 | 224 | 584 | 123 | 83 | 117 | 91 | 62 | 44 | 49 | 38 |
| 16 | 38 | 187 | 197 | 525 | 203 | 84 | 103 | 89 | 151 | 42 | 51 | 34 |
| 17 | 47 | 149 | 181 | 397 | 218 | 96 | 102 | 89 | 100 | 41 | 42 | 33 |
| 18 | 71 | 127 | 168 | 342 | 212 | 127 | 103 | 83 | 78 | 39 | 40 | 33 |
| 19 | 74 | 115 | 159 | 284 | 171 | 115 | 102 | 79 | 69 | 38 | 45 | 32 |
| 20 | 64 | 105 | 149 | 251 | 151 | 105 | 168 | 76 | 63 | 38 | 81 | 30 |
| 21 | 77 | 98 | 140 | 230 | 138 | 96 | 136 | 73 | 60 | 36 | 62 | 30 |
| 22 | 94 | 102 | 145 | 224 | 131 | 105 | 121 | 70 | 58 | 35 | 53 | 30 |
| 23 | 85 | 192 | 173 | 209 | 134 | 102 | 111 | 69 | 55 | 34 | 47 | 31 |
| 24 | 70 | 230 | 224 | 195 | 140 | 187 | 138 | 72 | 56 | 33 | 44 | 30 |
| 25 | 159 | 197 | 227 | 181 | 136 | 145 | 123 | 70 | 56 | 33 | 50 | 29 |
| 26 | 158 | 281 | 384 | 173 | 125 | 127 | 115 | 66 | 51 | 32 | 42 | 27 |
| 27 | 114 | 245 | 306 | 327 | 125 | 115 | 111 | 67 | 49 | 32 | 40 | 26 |
| 28 | 123 | 195 | 245 | 242 | 119 | 113 | 111 | 65 | 47 | 31 | 38 | 26 |
| 29 | 351 | 159 | 295 | 215 | 111 | 102 | 115 | 69 | 46 | 30 | 35 | 25 |
| 30 | 421 | 264 | 306 | 195 | --- | 103 | 131 | 75 | 49 | 30 | 34 | 25 |
| 31 | 297 | --- | 242 | 178 | --- | 107 | --- | 66 | --- | 29 | 32 | --- |
| TOTAL | 2748 | 4889 | 9014 | 8188 | 4115 | 3194 | 3597 | 3066 | 1827 | 1345 | 1276 | 1039 |
| MEAN | 88.6 | 163 | 291 | 264 | 142 | 103 | 120 | 98.9 | 60.9 | 43.4 | 41.2 | 34.6 |
| MAX | 421 | 281 | 739 | 584 | 218 | 187 | 168 | 184 | 151 | 83 | 81 | 72 |
| MIN | 22 | 89 | 140 | 173 | 109 | 83 | 93 | 65 | 46 | 29 | 27 | 25 |
| CFSM | 5.15 | 9.48 | 16.9 | 15.3 | 8.26 | 5.99 | 6.98 | 5.75 | 3.54 | 2.52 | 2.40 | 2.01 |
| IN. | 5.94 | 10.57 | 19.49 | 17.71 | 8.90 | 6.91 | 7.78 | 6.63 | 3.95 | 2.91 | 2.76 | 2.25 |
| AC-FT | 5450 | 9700 | 17880 | 16240 | 8160 | 6340 | 7130 | 6080 | 3620 | 2670 | 2530 | 2060 |

CAL YR 1975 TOTAL 46510 MEAN 127 MAX 739 MIN 22 CFSM 7.38 IN 100.59 AC-FT 92250
WTR YR 1976 TOTAL 44298 MEAN 121 MAX 739 MIN 22 CFSM 7.03 IN 95.80 AC-FT 87870

## 12117500 CEDAR RIVER NEAR LANDSBURG, WA

LOCATION.--Lat 47°23'38", long 121°57'12", on west line NW¼SE¼ sec.17, T.22 N., R.7 E., King County, Hydrologic Unit 17110012, on left bank 1.8 mi (2.9 km) upstream from intake of Seattle water-supply system near Landsburg, 4.0 mi (6.4 km) east of Maple Valley, 5.9 mi (9.5 km) downstream from Taylor Creek, and at mile 23.4 (37.7 km).

DRAINAGE AREA.--122 mi² (316 km²), includes Rock Creek drainage above Walsh Lake diversion.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1895 to current year (prior to October 1948, flow of Rock Creek included). Monthly discharge only for some periods, published in WSP 1316. Published as "near Seattle" 1895-98, "near Maple Valley" 1902, and as "near Ravensdale" 1898-1901, 1903-12.

REVISED RECORDS.--WSP 313: 1895-98, 1902-9. WSP 1286: 1912. WSP 1316: 1896-98(M), 1902-11(M). WSP 1736: 1960. WSP 1932: 1947, drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 600 ft (183 m), from river-profile map. Prior to Oct. 1, 1898 nonrecording gage at site 2.2 mi (3.5 km) downstream at different datum. Mar. 24, 1901, to May 15, 1913, nonrecording gage at site 2 mi (3.2 km) downstream at datum 535.84 ft (163.324 m) above mean sea level (levels by city of Seattle). Apr. 30, 1914, to Oct. 22, 1928, water-stage recorder 0.2 mi (0.3 km) downstream at different datum.

REMARKS.--Water discharge records good. All diversions except Rock Creek returned to river above station. Rock Creek, a tributary which entered naturally just above station prior to 1932, is diverted during summer months to enter river at a point about 3.9 mi (6.3 km) below station. Some regulation by Chester Morse Lake and Masonry Dam, 12.2 mi (19.6 km) upstream.

AVERAGE DISCHARGE.--81 years, 703 ft³/s (19.91 m³/s) 509,300 acre-ft/yr (628 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft³/s (402 m³/s) Nov. 19, 1911, gage height, 10.0 ft (3.05 m), from graph based on gage readings, site and datum then in use, by computation of peak flow over dam, peak caused by failure of flashboards at Chester Morse Lake; minimum observed, 83 ft³/s (2.35 m³/s) Sept. 19, 1898.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,930 ft³/s (225 m³/s) Dec. 4, gage height, 8.49 ft (2.588 m), minimum 261 ft³/s (7.39 m³/s) Oct. 5, gage height, 1.05 ft (0.320 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 503 | 878 | 5230 | 1510 | 1300 | 1100 | 604 | 489 | 429 | 1030 | 348 | 302 |
| 2 | 391 | 821 | 6180 | 1400 | 1250 | 956 | 499 | 560 | 437 | 1020 | 339 | 305 |
| 3 | 290 | 789 | 7550 | 1330 | 1210 | 927 | 478 | 506 | 428 | 784 | 342 | 627 |
| 4 | 275 | 741 | 7370 | 1440 | 1180 | 678 | 470 | 442 | 398 | 987 | 345 | 908 |
| 5 | 278 | 719 | 5710 | 1540 | 1170 | 602 | 466 | 456 | 442 | 986 | 339 | 938 |
| 6 | 287 | 710 | 4150 | 1440 | 1160 | 586 | 493 | 441 | 440 | 999 | 339 | 1010 |
| 7 | 285 | 722 | 3270 | 1390 | 1150 | 614 | 490 | 431 | 429 | 861 | 393 | 836 |
| 8 | 307 | 730 | 2910 | 1420 | 1140 | 635 | 511 | 431 | 402 | 780 | 367 | 743 |
| 9 | 296 | 710 | 2660 | 1360 | 845 | 857 | 531 | 432 | 382 | 622 | 327 | 593 |
| 10 | 303 | 697 | 2490 | 1360 | 1100 | 598 | 509 | 585 | 376 | 513 | 331 | 636 |
| 11 | 290 | 679 | 2250 | 1440 | 1110 | 634 | 538 | 1060 | 380 | 498 | 333 | 629 |
| 12 | 287 | 670 | 2020 | 1360 | 1190 | 670 | 513 | 1060 | 436 | 615 | 330 | 596 |
| 13 | 288 | 678 | 1940 | 1310 | 1150 | 695 | 448 | 1060 | 440 | 431 | 334 | 580 |
| 14 | 290 | 860 | 1690 | 1620 | 1130 | 557 | 430 | 960 | 416 | 410 | 339 | 571 |
| 15 | 308 | 915 | 1630 | 2450 | 1120 | 708 | 515 | 862 | 470 | 408 | 364 | 441 |
| 16 | 301 | 843 | 1490 | 3120 | 1250 | 613 | 467 | 899 | 881 | 510 | 391 | 340 |
| 17 | 318 | 789 | 1360 | 2930 | 1130 | 783 | 659 | 1020 | 917 | 849 | 332 | 330 |
| 18 | 399 | 741 | 1250 | 2720 | 1060 | 562 | 596 | 858 | 1080 | 863 | 343 | 328 |
| 19 | 365 | 706 | 1210 | 2470 | 903 | 562 | 768 | 677 | 1060 | 951 | 331 | 321 |
| 20 | 354 | 696 | 1170 | 2160 | 883 | 520 | 561 | 601 | 1050 | 965 | 400 | 312 |
| 21 | 374 | 697 | 1150 | 1890 | 855 | 490 | 570 | 576 | 1050 | 487 | 359 | 310 |
| 22 | 414 | 696 | 1120 | 1720 | 836 | 488 | 610 | 562 | 1040 | 381 | 342 | 310 |
| 23 | 391 | 809 | 1170 | 1570 | 821 | 500 | 618 | 562 | 1040 | 370 | 332 | 321 |
| 24 | 405 | 889 | 1250 | 1490 | 822 | 618 | 524 | 570 | 1040 | 361 | 325 | 334 |
| 25 | 563 | 1030 | 1260 | 1380 | 824 | 572 | 518 | 562 | 1030 | 360 | 339 | 372 |
| 26 | 609 | 1360 | 1580 | 1310 | 892 | 544 | 620 | 505 | 1040 | 355 | 325 | 388 |
| 27 | 551 | 1590 | 1440 | 1580 | 1130 | 724 | 477 | 544 | 1020 | 353 | 317 | 381 |
| 28 | 558 | 1500 | 1330 | 1540 | 1130 | 785 | 452 | 507 | 1020 | 345 | 314 | 399 |
| 29 | 905 | 1440 | 1420 | 1450 | 1110 | 868 | 419 | 439 | 1020 | 353 | 308 | 409 |
| 30 | 1170 | 1680 | 1600 | 1430 | --- | 596 | 433 | 455 | 1020 | 347 | 305 | 406 |
| 31 | 1020 | --- | 1600 | 1370 | --- | 818 | --- | 438 | --- | 344 | 304 | --- |
| TOTAL | 13375 | 26785 | 78450 | 52500 | 30851 | 20860 | 15787 | 19550 | 21613 | 19138 | 10537 | 14976 |
| MEAN | 431 | 893 | 2531 | 1694 | 1064 | 673 | 526 | 631 | 720 | 617 | 340 | 499 |
| MAX | 1170 | 1680 | 7550 | 3120 | 1300 | 1100 | 768 | 1060 | 1080 | 1030 | 400 | 1010 |
| MIN | 275 | 670 | 1120 | 1310 | 821 | 488 | 419 | 431 | 376 | 344 | 304 | 302 |
| AC-FT | 26530 | 53130 | 155600 | 104100 | 61190 | 41380 | 31310 | 38780 | 42870 | 37960 | 20900 | 29700 |

CAL YR 1975 TOTAL 332488 MEAN 911 MAX 7550 MIN 248 AC-FT 659500
WTR YR 1976 TOTAL 324422 MEAN 886 MAX 7550 MIN 275 AC-FT 643500

## 12117500 CEDAR RIVER NEAR LANDSBURG, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1953 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August 1953 to current year.

INSTRUMENTATION.--Temperature recorder since August 1953.

REMARKS.--Temperature recorder clock stopped Jan. 12-18 (range in temperature 5.5°C to 6.5°C), Mar. 17, 18 (range in temperature 6.5°C to 7.0°C).

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 19.5°C July 27, 28, 1960, July 13, 1961; minimum, 2.0°C on several days during winter of 1956, 1957,1960, 1971 and 1973.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 14.5°C July 18, 19, Sept. 3, 4; minimum, 4.5°C on many days during January, February and March.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 11.0 | 10.0 | 8.0 | 8.0 | 5.5 | 5.5 | 6.0 | 6.0 | 4.5 | 4.5 | 5.0 | 4.5 |
| 2 | 11.0 | 10.5 | 8.0 | 8.0 | 5.5 | 5.5 | 6.0 | 6.0 | 5.0 | 4.5 | 5.0 | 4.5 |
| 3 | 10.5 | 10.0 | 8.0 | 8.0 | 6.0 | 5.5 | 6.0 | 6.0 | 5.0 | 5.0 | 5.5 | 5.0 |
| 4 | 10.0 | 9.5 | 8.0 | 8.0 | 6.0 | 6.0 | 6.0 | 6.0 | 5.0 | 4.5 | 6.0 | 5.0 |
| 5 | 9.5 | 9.0 | 8.0 | 8.0 | 6.0 | 6.0 | 6.0 | 6.0 | 5.0 | 4.5 | 6.5 | 5.5 |
| 6 | 9.0 | 9.0 | 8.0 | 8.0 | 6.0 | 6.0 | 6.0 | 6.0 | 5.0 | 4.5 | 6.5 | 5.5 |
| 7 | 9.0 | 8.5 | 8.0 | 7.0 | 6.0 | 6.0 | 6.0 | 6.0 | 5.0 | 4.5 | 6.5 | 5.5 |
| 8 | 9.0 | 8.5 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 | 6.0 | 5.0 | 4.5 | 6.5 | 5.5 |
| 9 | 9.0 | 9.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 | 6.0 | 5.5 | 5.0 | 6.5 | 5.5 |
| 10 | 9.0 | 9.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 | 6.0 | 5.0 | 5.0 | 6.5 | 6.0 |
| 11 | 9.0 | 9.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 | 6.0 | 5.0 | 5.0 | 6.5 | 6.0 |
| 12 | 9.0 | 9.0 | 7.0 | 6.5 | 6.0 | 6.0 | --- | --- | 5.0 | 5.0 | 6.5 | 6.0 |
| 13 | 9.0 | 9.0 | 6.5 | 6.5 | 6.0 | 6.0 | --- | --- | 5.5 | 5.0 | 7.0 | 6.0 |
| 14 | 9.0 | 9.0 | 7.0 | 6.5 | 6.0 | 6.0 | --- | --- | 5.5 | 5.0 | 7.0 | 6.0 |
| 15 | 9.0 | 9.0 | 7.0 | 6.5 | 6.0 | 6.0 | --- | --- | 5.0 | 5.0 | 7.0 | 6.0 |
| 16 | 9.0 | 9.0 | 7.0 | 6.5 | 6.0 | 6.0 | --- | --- | 5.0 | 5.0 | 7.0 | 6.5 |
| 17 | 9.0 | 9.0 | 6.5 | 6.5 | 6.0 | 6.0 | --- | --- | 5.5 | 5.0 | --- | --- |
| 18 | 9.0 | 9.0 | 6.5 | 6.5 | 6.0 | 6.0 | --- | --- | 5.5 | 5.0 | --- | --- |
| 19 | 9.0 | 9.0 | 6.5 | 6.0 | 6.0 | 6.0 | 4.5 | 4.5 | 5.0 | 5.0 | 7.0 | 6.5 |
| 20 | 9.0 | 9.0 | 6.0 | 6.0 | 6.0 | 5.5 | 4.5 | 4.5 | 5.0 | 5.0 | 7.0 | 6.5 |
| 21 | 9.0 | 8.5 | 6.0 | 6.0 | 5.5 | 5.5 | 4.5 | 4.5 | 5.5 | 5.0 | 8.0 | 6.5 |
| 22 | 8.5 | 8.0 | 6.0 | 6.0 | 5.5 | 5.5 | 4.5 | 4.5 | 5.5 | 5.5 | 7.0 | 7.0 |
| 23 | 8.0 | 8.0 | 6.0 | 6.0 | 5.5 | 5.5 | 4.5 | 4.5 | 5.5 | 5.5 | 7.0 | 7.0 |
| 24 | 8.0 | 7.0 | 6.0 | 6.0 | 5.5 | 5.5 | 4.5 | 4.5 | 5.5 | 5.5 | 7.0 | 7.0 |
| 25 | 8.0 | 7.0 | 6.0 | 6.0 | 6.0 | 5.5 | 4.5 | 4.5 | 5.5 | 5.5 | 7.0 | 7.0 |
| 26 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 | 6.0 | 4.5 | 4.5 | 5.5 | 5.0 | 7.0 | 7.0 |
| 27 | 8.0 | 7.0 | 6.0 | 6.0 | 6.0 | 6.0 | 4.5 | 4.5 | 5.0 | 5.0 | 7.0 | 6.0 |
| 28 | 8.0 | 7.0 | 6.5 | 6.0 | 6.0 | 6.0 | 4.5 | 4.5 | 5.0 | 4.5 | 6.5 | 6.0 |
| 29 | 8.0 | 7.0 | 6.0 | 6.0 | 6.5 | 6.0 | 4.5 | 4.5 | 5.0 | 4.5 | 6.5 | 6.0 |
| 30 | 8.0 | 7.0 | 6.0 | 5.5 | 6.0 | 6.0 | 4.5 | 4.5 | --- | --- | 7.0 | 6.0 |
| 31 | 8.0 | 7.0 | --- | --- | 6.0 | 6.0 | 4.5 | 4.5 | --- | --- | 7.0 | 6.0 |
| MONTH | 11.0 | 7.0 | 8.0 | 5.5 | 6.5 | 5.5 | --- | --- | 5.5 | 4.5 | 8.0 | 4.5 |

## 12117500 CEDAR RIVER NEAR LANDSBURG, WA--Continued

### TEMPERATURE (DEG. C) OF WATER. WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 7.0 | 6.0 | 10.5 | 9.0 | 9.5 | 9.0 | 11.5 | 11.5 | 12.0 | 11.0 | 11.0 | 10.5 |
| 2 | 8.0 | 6.5 | 10.0 | 9.0 | 10.0 | 9.0 | 12.0 | 11.5 | 12.0 | 11.0 | 10.5 | 10.5 |
| 3 | 8.5 | 7.0 | 9.5 | 8.5 | 10.0 | 9.0 | 11.5 | 10.5 | 12.0 | 11.0 | 14.5 | 10.5 |
| 4 | 8.5 | 7.0 | 9.0 | 8.5 | 10.0 | 9.0 | 11.5 | 11.0 | 11.5 | 11.0 | 14.5 | 14.0 |
| 5 | 8.5 | 8.0 | 9.0 | 8.5 | 11.0 | 9.0 | 13.0 | 11.0 | 11.0 | 11.0 | 14.0 | 14.0 |
| 6 | 8.5 | 8.0 | 10.0 | 8.5 | 10.5 | 9.5 | 13.0 | 12.0 | 11.5 | 11.0 | 14.0 | 14.0 |
| 7 | 8.5 | 8.0 | 10.5 | 9.0 | 10.5 | 9.0 | 13.0 | 11.5 | 11.5 | 11.5 | 14.0 | 13.5 |
| 8 | 8.5 | 8.0 | 10.5 | 9.0 | 10.5 | 9.5 | 11.5 | 11.5 | 11.5 | 11.0 | 13.5 | 13.0 |
| 9 | 9.0 | 8.0 | 11.0 | 9.0 | 11.0 | 9.5 | 11.5 | 11.0 | 11.0 | 11.0 | 13.0 | 11.5 |
| 10 | 9.0 | 8.0 | 10.5 | 9.0 | 11.0 | 10.0 | 11.0 | 10.5 | 12.0 | 11.0 | 12.0 | 12.0 |
| 11 | 9.0 | 8.5 | 9.0 | 9.0 | 10.0 | 9.5 | 11.0 | 10.5 | 13.0 | 11.5 | 12.0 | 12.0 |
| 12 | 8.5 | 8.0 | 10.0 | 9.0 | 9.5 | 9.5 | 11.5 | 10.5 | 12.0 | 11.5 | 12.0 | 12.0 |
| 13 | 8.5 | 8.5 | 9.0 | 9.0 | 10.0 | 9.5 | 11.5 | 10.5 | 11.5 | 11.5 | 12.0 | 11.5 |
| 14 | 8.5 | 8.0 | 10.0 | 9.0 | 11.5 | 9.0 | 12.0 | 10.0 | 12.0 | 11.5 | 12.0 | 11.5 |
| 15 | 8.0 | 8.0 | 10.0 | 9.0 | 11.0 | 10.0 | 13.0 | 10.5 | 11.5 | 11.0 | 11.5 | 10.5 |
| 16 | 8.5 | 8.0 | 10.0 | 9.0 | 10.0 | 10.0 | 13.5 | 11.0 | 11.0 | 11.0 | 10.5 | 10.0 |
| 17 | 8.0 | 8.0 | 9.5 | 9.0 | 12.0 | 10.0 | 13.5 | 10.5 | 11.0 | 10.5 | 10.5 | 10.5 |
| 18 | 8.0 | 8.0 | 10.0 | 9.0 | 12.0 | 11.0 | 14.5 | 13.5 | 11.5 | 10.5 | 10.5 | 10.0 |
| 19 | 8.0 | 8.0 | 9.0 | 9.0 | 11.5 | 11.0 | 14.5 | 12.0 | 11.0 | 10.5 | 10.5 | 10.0 |
| 20 | 8.0 | 8.0 | 10.0 | 9.0 | 11.5 | 11.0 | 14.0 | 14.0 | 10.5 | 10.5 | 10.5 | 10.0 |
| 21 | 8.5 | 8.0 | 10.5 | 9.0 | 11.0 | 11.0 | 14.0 | 12.0 | 11.0 | 10.0 | 10.5 | 10.0 |
| 22 | 8.5 | 8.0 | 9.5 | 9.0 | 11.0 | 11.0 | 12.0 | 11.0 | 10.5 | 10.0 | 10.0 | 10.0 |
| 23 | 8.0 | 8.0 | 9.5 | 9.5 | 11.0 | 11.0 | 13.5 | 11.0 | 10.5 | 10.0 | 10.0 | 10.0 |
| 24 | 8.0 | 8.0 | 9.5 | 9.5 | 11.0 | 11.0 | 13.0 | 11.0 | 10.5 | 10.5 | 10.5 | 10.0 |
| 25 | 8.5 | 8.0 | 9.5 | 9.0 | 11.0 | 10.5 | 13.5 | 11.0 | 10.5 | 10.5 | 11.0 | 10.5 |
| 26 | 8.5 | 8.0 | 10.5 | 9.5 | 11.5 | 10.5 | 12.0 | 11.0 | 10.5 | 10.0 | 11.0 | 10.5 |
| 27 | 9.0 | 8.0 | 10.5 | 9.5 | 11.5 | 11.0 | 13.0 | 10.5 | 10.5 | 10.0 | 11.0 | 11.0 |
| 28 | 9.0 | 8.5 | 10.0 | 9.0 | 11.5 | 11.0 | 13.0 | 10.5 | 11.0 | 10.5 | 11.0 | 11.0 |
| 29 | 10.0 | 8.5 | 9.5 | 9.0 | 11.5 | 11.5 | 12.0 | 11.5 | 11.0 | 10.5 | 11.0 | 11.0 |
| 30 | 10.5 | 9.0 | 10.0 | 9.0 | 11.5 | 11.5 | 12.0 | 11.5 | 11.0 | 10.5 | 11.5 | 11.0 |
| 31 | --- | --- | 9.5 | 9.0 | --- | --- | 13.0 | 11.5 | 11.0 | 10.5 | --- | --- |
| MONTH | 10.5 | 6.0 | 11.0 | 8.5 | 12.0 | 9.0 | 14.5 | 10.0 | 13.0 | 10.0 | 14.5 | 10.0 |
| YEAR | 14.5 | 4.5 | | | | | | | | | | |

## 12119000 CEDAR RIVER AT RENTON, WA

LOCATION.--Lat 47°28'58", long 122°12'08", in SW¼NW¼ sec.17, T.23 N., R.5 E., King County, Hydrologic Unit 17110012, on left bank 125 ft (38 m) downstream from bridge on Mill Avenue at Renton and at mile 1.6 (2.6 km)

DRAINAGE AREA.--186 mi$^2$ (482 km$^2$), includes 3.67 mi$^2$ (9.51 km$^2$) in vicinity of Youngs Lake in Big Soos Creek basin.

PERIOD OF RECORD.--March 1901 to July 1903 (fragmentary), September 1906 to December 1907 (monthly discharge only), August 1945 to current year. Chemical analyses July 1959 to September 1971, water temperatures August 1965 to February 1967.

REVISED RECORDS.--WSP 1316: 1901-2. WSP 1932: Drainage area. WDR WA-75-1: 1972-1974.

GAGE.--Water-stage recorder. Datum of gage is 15.20 ft (4.633 m) above mean sea level. Prior to Jan. 1, 1908, nonrecording gages within 1 mi (1.6 km) of present site, at datum 10.67 ft (3.252 m) below mean sea level, unadjusted. Aug. 7, 1945, to Aug. 15, 1947, water-stage recorder at site 700 ft (213 m) upstream at datum 20.13 ft (6.136 m) above mean sea level and Aug. 16, 1947, to Dec. 7, 1950, at datum 19.13 ft (5.831 m) above mean sea level.

REMARKS.--Records good except those for periods of no gage-height record, which are fair. Flow partly regulated by Chester Morse Lake for operation of powerplant at Cedar Falls 32.1 mi (51.6 km) upstream from gage. An average daily discharge of about 156 cfs (4.42 m$^3$/s) was diverted during the year at Landsburg by the city of Seattle for municipal use.

AVERAGE DISCHARGE.--31 years (1945-76), 716 ft$^3$/s (20.28 m$^3$/s), 518,700 acre-ft/yr (640 hm$^3$/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,800 ft$^3$/s (249 m$^3$/s), Dec. 4, 1975, gage height, 14.14 ft (4.310 m) from outside high-water mark; minimum daily, 30 ft$^3$/s (0.85 m$^3$/s) July 1, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,800 ft$^3$/s (249 m$^3$/s) Dec. 4, gage height, 14.14 ft (4.310 m) from outside high-water mark; minimum, 108 ft$^3$/s (3.06 m$^3$/s) July 26, gage height, 6.35 ft (1.935 m), minimum gage height, 6.19 ft (1.887 m) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 258 | 986 | 5400 | 1520 | 1400 | 1290 | 793 | 568 | 526 | 772 | 126 | 178 |
| 2 | 242 | 1010 | 6500 | 1380 | 1320 | 1150 | 544 | 646 | 520 | 765 | 135 | 174 |
| 3 | 242 | 914 | 8200 | 1330 | 1270 | 1110 | 508 | 544 | 470 | 562 | 132 | 316 |
| 4 | 218 | 686 | 8000 | 1430 | 1220 | 919 | 496 | 466 | 435 | 737 | 135 | 891 |
| 5 | 230 | 579 | 6300 | 1620 | 1220 | 658 | 484 | 526 | 514 | 730 | 112 | 948 |
| 6 | 254 | 568 | 5200 | 1460 | 1330 | 622 | 514 | 496 | 520 | 737 | 129 | 1070 |
| 7 | 222 | 608 | 4100 | 1370 | 1320 | 610 | 502 | 478 | 502 | 724 | 192 | 891 |
| 8 | 250 | 644 | 3500 | 1430 | 1320 | 688 | 526 | 490 | 465 | 670 | 248 | 622 |
| 9 | 250 | 620 | 3100 | 1440 | 849 | 972 | 610 | 478 | 465 | 480 | 213 | 385 |
| 10 | 254 | 579 | 2900 | 1380 | 1130 | 779 | 508 | 478 | 455 | 380 | 256 | 380 |
| 11 | 230 | 552 | 2710 | 1590 | 1170 | 724 | 556 | 1120 | 455 | 355 | 228 | 360 |
| 12 | 222 | 524 | 2390 | 1500 | 1290 | 682 | 526 | 1070 | 508 | 445 | 220 | 355 |
| 13 | 218 | 541 | 2200 | 1430 | 1260 | 718 | 450 | 1060 | 520 | 410 | 228 | 332 |
| 14 | 246 | 922 | 2010 | 1860 | 1240 | 586 | 520 | 982 | 490 | 332 | 236 | 355 |
| 15 | 349 | 1100 | 1930 | 2400 | 1230 | 718 | 658 | 835 | 475 | 264 | 292 | 292 |
| 16 | 299 | 1050 | 1640 | 2980 | 1420 | 634 | 616 | 807 | 800 | 256 | 292 | 220 |
| 17 | 308 | 882 | 1450 | 2800 | 1320 | 700 | 700 | 926 | 724 | 420 | 248 | 228 |
| 18 | 420 | 829 | 1350 | 2570 | 1390 | 751 | 821 | 849 | 842 | 658 | 144 | 292 |
| 19 | 445 | 738 | 1290 | 2240 | 1080 | 580 | 912 | 646 | 821 | 628 | 174 | 288 |
| 20 | 420 | 710 | 1240 | 2050 | 956 | 532 | 730 | 550 | 807 | 751 | 232 | 268 |
| 21 | 367 | 692 | 1190 | 1730 | 877 | 484 | 688 | 544 | 800 | 514 | 171 | 171 |
| 22 | 435 | 686 | 1160 | 1570 | 835 | 520 | 682 | 532 | 807 | 181 | 192 | 264 |
| 23 | 349 | 780 | 1270 | 1470 | 870 | 562 | 786 | 550 | 828 | 144 | 192 | 268 |
| 24 | 313 | 882 | 1380 | 1380 | 1010 | 712 | 610 | 562 | 821 | 126 | 178 | 284 |
| 25 | 400 | 1050 | 1270 | 1270 | 1040 | 664 | 563 | 556 | 800 | 115 | 188 | 308 |
| 26 | 644 | 1430 | 1860 | 1160 | 1020 | 592 | 634 | 514 | 793 | 132 | 181 | 336 |
| 27 | 455 | 1760 | 1900 | 1470 | 1350 | 676 | 484 | 616 | 779 | 160 | 164 | 332 |
| 28 | 410 | 1650 | 1590 | 1520 | 1370 | 988 | 436 | 592 | 772 | 153 | 171 | 304 |
| 29 | 898 | 1490 | 1560 | 1370 | 1320 | 1040 | 436 | 550 | 765 | 132 | 174 | 332 |
| 30 | 1580 | 1810 | 1860 | 1430 | --- | 737 | 466 | 556 | 758 | 150 | 178 | 328 |
| 31 | 1370 | --- | 1730 | 1470 | --- | 772 | --- | 544 | --- | 117 | 178 | --- |
| TOTAL | 12798 | 27272 | 88180 | 51620 | 34427 | 23170 | 17759 | 20131 | 19237 | 13000 | 5939 | 11772 |
| MEAN | 413 | 909 | 2845 | 1665 | 1187 | 747 | 592 | 649 | 641 | 419 | 192 | 392 |
| MAX | 1580 | 1810 | 8200 | 2980 | 1420 | 1290 | 912 | 1120 | 842 | 772 | 292 | 1070 |
| MIN | 218 | 524 | 1160 | 1160 | 835 | 484 | 436 | 466 | 435 | 115 | 112 | 171 |
| AC-FT | 25380 | 54090 | 174900 | 102400 | 68290 | 45960 | 35220 | 39930 | 38160 | 25790 | 11780 | 23350 |

CAL YR 1975 TOTAL 352097 MEAN 965 MAX 8200 MIN 157 AC-FT 698400
WTR YR 1976 TOTAL 325305 MEAN 889 MAX 8200 MIN 112 AC-FT 645200

NOTE.--No gage-height record Dec. 1-10.

## 12119007 CEDAR RIVER AT LOGAN STREET AT RENTON, WA

LOCATION.--Lat 47°29'09", long 122°12'28", in NE¼NE¼ sec.18, T.23 N., R.5 E., King County, Hydrologic Unit 17110012, at Logan Avenue bridge near mouth, 0.2 mi (0.3 km) downstream from gaging station at Renton and at mile 1.0 (1.6 km).

PERIOD OF RECORD.--October 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 16... | 1150 | 304 | 79 | 7.6 | 10.7 | 17 | 2 |
| 22... | 1325 | 445 | 79 | 7.3 | 9.4 | 38 | 9 |
| NOV | | | | | | | |
| 05... | 1120 | 584 | 69 | 7.4 | 9.6 | 25 | 4 |
| 19... | 1215 | 773 | 74 | 7.1 | 5.9 | 17 | 4 |
| DEC | | | | | | | |
| 03... | 1110 | *8200 | 41 | 7.0 | 7.5 | 121 | 300 |
| 17... | 1045 | 1470 | 60 | 6.8 | 5.3 | 29 | 17 |
| JAN | | | | | | | |
| 14... | 1230 | 1880 | 53 | 7.6 | 6.6 | 79 | 33 |
| 28... | 1210 | 1540 | 49 | 7.2 | 7.5 | 42 | 16 |
| FEB | | | | | | | |
| 04... | 1140 | 1210 | 58 | 7.6 | 4.3 | 25 | 8 |
| 19... | 1145 | 1090 | 59 | 7.2 | 5.6 | 17 | 5 |
| MAR | | | | | | | |
| 03... | 1205 | 786 | 60 | 7.2 | 4.3 | 17 | 6 |
| 18... | 1230 | 652 | 63 | 7.6 | 7.7 | 13 | 5 |
| APR | | | | | | | |
| 07... | 1330 | 508 | 70 | 7.0 | 9.7 | 8 | 2 |
| 21... | 1225 | 670 | 65 | 8.0 | 9.7 | 13 | 4 |
| MAY | | | | | | | |
| 05... | 1220 | 544 | 70 | 8.0 | 10.6 | 17 | 8 |
| 19... | 1310 | 628 | 60 | 7.0 | 12.2 | 8 | 6 |
| JUN | | | | | | | |
| 03... | 1310 | 480 | 75 | 7.6 | 11.7 | 5 | 2 |
| 16... | 1300 | 877 | 58 | 7.5 | 12.2 | 21 | 10 |
| JUL | | | | | | | |
| 08... | 1210 | 712 | 60 | 7.6 | 14.6 | 25 | 5 |
| 21... | 1225 | 400 | 61 | 7.6 | 15.1 | 8 | 2 |
| AUG | | | | | | | |
| 04... | 1140 | 135 | 87 | 7.7 | 15.5 | 8 | 2 |
| 18... | 1140 | 141 | 96 | 7.5 | 14.5 | 8 | 2 |
| SEP | | | | | | | |
| 09... | 1115 | 420 | 68 | 7.5 | 13.6 | 8 | 1 |
| 29... | 1125 | *332 | 75 | 7.7 | 13.5 | -- | 5 |

*Mean daily discharge.

| DATE | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 16... | 11.7 | B400 | 100 | .29 | .12 | .03 | .02 |
| 22... | 11.9 | B2200 | B95 | .44 | .09 | .05 | .01 |
| NOV | | | | | | | |
| 05... | 11.0 | B1000 | 40 | .40 | .06 | .02 | .00 |
| 19... | 11.9 | B350 | B28 | .43 | .05 | .01 | .00 |
| DEC | | | | | | | |
| 03... | 10.8 | 4000 | <100 | .33 | .28 | .80 | .01 |
| 17... | 12.4 | B400 | B4 | .29 | .12 | .04 | .00 |
| JAN | | | | | | | |
| 14... | 12.4 | B3400 | B400 | .36 | .28 | .11 | .01 |
| 28... | 12.2 | B350 | B15 | .28 | .09 | .04 | .00 |
| FEB | | | | | | | |
| 04... | 12.8 | B15 | <2 | .24 | .10 | .02 | .01 |
| 19... | 12.6 | 260 | B5 | .35 | .07 | .02 | .01 |
| MAR | | | | | | | |
| 03... | 13.0 | B30 | B2 | .29 | .02 | .03 | .00 |
| 18... | 12.1 | B220 | 48 | .25 | .05 | .02 | .00 |
| APR | | | | | | | |
| 07... | 12.6 | B130 | B4 | .18 | .04 | .01 | .00 |
| 21... | 13.2 | B20 | B2 | .11 | .11 | .02 | .00 |
| MAY | | | | | | | |
| 05... | 12.9 | B70 | B10 | .12 | .10 | .02 | .00 |
| 19... | 12.0 | B60 | B4 | .12 | .07 | .01 | .00 |
| JUN | | | | | | | |
| 03... | 11.8 | 190 | B2 | .13 | .06 | .01 | .01 |
| 16... | 11.1 | 560 | 220 | .16 | .07 | .04 | .00 |
| JUL | | | | | | | |
| 08... | 10.7 | 580 | 200 | .12 | .07 | .02 | .00 |
| 21... | 10.5 | >4000 | B17 | .06 | .06 | .01 | .00 |
| AUG | | | | | | | |
| 04... | 10.7 | B280 | B10 | .05 | .05 | .01 | .00 |
| 18... | 10.5 | >140 | 40 | .23 | .04 | .03 | .00 |
| SEP | | | | | | | |
| 09... | 10.3 | B480 | 44 | .13 | .06 | .02 | .00 |
| 29... | 10.8 | 2800 | B36 | .13 | .06 | .02 | .01 |

B Results based upon colony counts outside the ideal range.

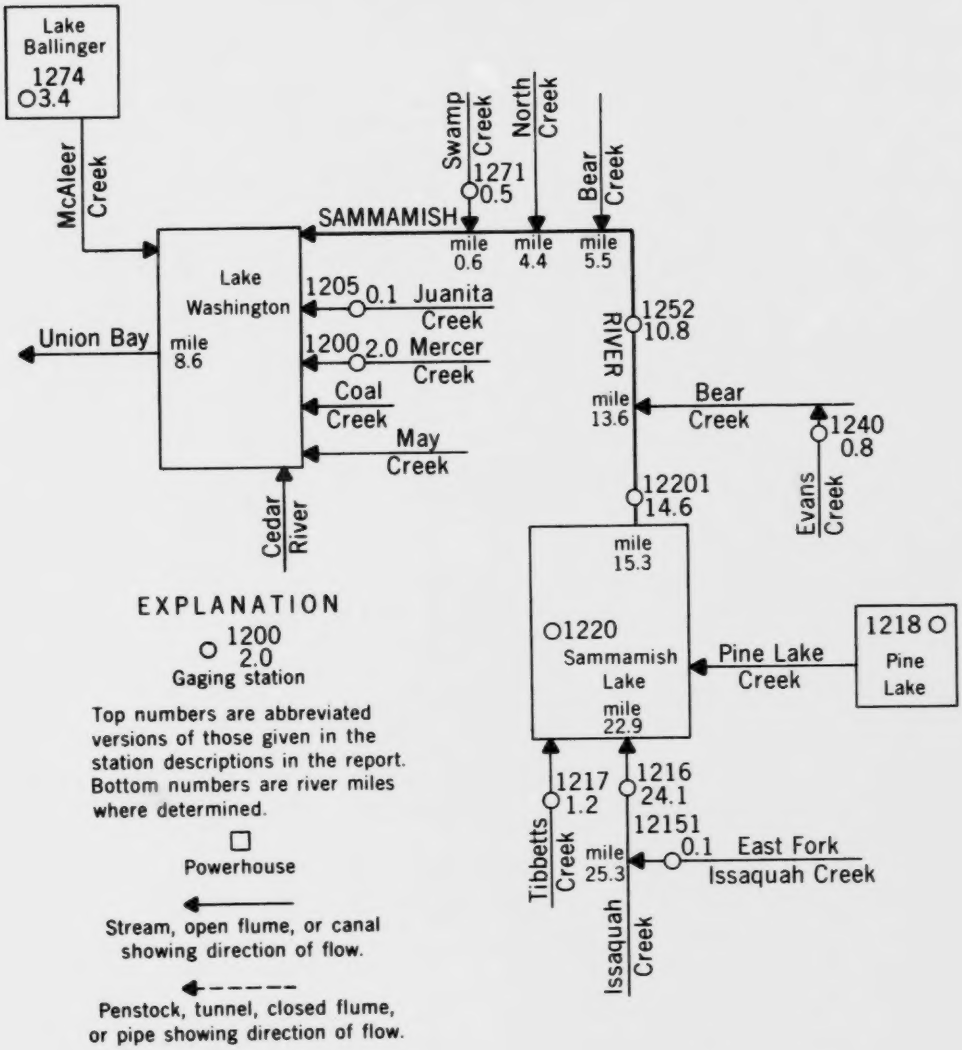
Lake Ballinger
1274
3.4
McAleer Creek
Swamp Creek
1271
0.5
North Creek
Bear Creek
SAMMAMISH
mile 0.6
mile 4.4
mile 5.5
Lake Washington
mile 8.6
Union Bay
1205
0.1 Juanita Creek
1200
2.0 Mercer Creek
Coal Creek
May Creek
Cedar River
RIVER
1252
10.8
mile 13.6
Bear Creek
1240
0.8
Evans Creek
12201
14.6
mile 15.3
1220
Sammamish Lake
mile 22.9
1218
Pine Lake
Pine Lake Creek
1217
1.2
Tibbetts Creek
1216
24.1
12151
mile 25.3
0.1 East Fork Issaquah Creek
Issaquah Creek
EXPLANATION
1200
2.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 13. Gaging stations in Lake Washington basin (below Cedar River).

## 12120000 MERCER CREEK NEAR BELLEVUE, WA

LOCATION.--Lat 47°36'11", long 122°10'47", in NW¼NW¼ sec.4, T.24 N., R.5 E., King County, Hydrologic Unit 17110012, on left bank 40 ft (12 m) upstream from Northern Pacific Railway trestle, 1.2 mi (1.9 km) southeast of Bellevue, and 2.0 mi (3.2 km) upstream from mouth.

DRAINAGE AREA.--12.0 mi² (31.1 km²)

PERIOD OF RECORD.--June to October 1945, June 1955 to current year.

REVISED RECORDS.--WSP 1446: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 17.11 ft (5.215 m) above mean sea level (levels by Municipality of Metropolitan Seattle engineers). Prior to June 5, 1959, at site 600 ft (183 m) downstream at different datums.

REMARKS.--Records fair. Some small diversions for irrigation and domestic use. No regulation.

AVERAGE DISCHARGE.--21 years, 22.7 ft³/s (0.643 m³/s), 25.69 in/yr (653 mm/yr), 16,450 acre-ft/yr (20.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 402 ft³/s (11.4 m³/s) Mar. 6, 1972, gage height, 8.68 ft (2.646 m), from high-water mark in well, from rating curve extended above 180 ft³/s (5.10 m³/s) on basis of computation of peak flow through culvert; minimum, 1.9 ft³/s (0.054 m³/s) Aug. 6, 1958.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 170 ft³/s (4.81 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 29 | 1400 | 230 | 6.51 | 3.65 | 1.113 | Dec. 26 | 1500 | 264 | 7.48 | 3.93 | 1.198 |
| Nov. 14 | 0300 | 212 | 6.00 | 3.50 | 1.067 | Jan. 27 | 0600 | 192 | 5.44 | 3.33 | 1.015 |
| Dec. 4 | 0300 | *274 | 7.76 | *4.02 | 1.225 | | | | | | |

Minimum discharge, 6.1 ft³/s (0.17 m³/s) July 26, gage height, 0.27 ft (0.082 m).

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.4 | 31 | 29 | 22 | 19 | 32 | 25 | 14 | 12 | 11 | 7.6 | 14 |
| 2 | 7.2 | 51 | 118 | 21 | 19 | 25 | 20 | 30 | 14 | 9.9 | 7.3 | 14 |
| 3 | 17 | 32 | 198 | 23 | 19 | 20 | 19 | 17 | 11 | 13 | 8.3 | 14 |
| 4 | 18 | 27 | 219 | 50 | 18 | 18 | 18 | 13 | 11 | 16 | 8.9 | 13 |
| 5 | 43 | 24 | 77 | 35 | 17 | 18 | 17 | 34 | 10 | 11 | 9.6 | 18 |
| 6 | 24 | 48 | 44 | 27 | 16 | 17 | 17 | 18 | 10 | 9.6 | 11 | 42 |
| 7 | 13 | 94 | 63 | 37 | 17 | 17 | 17 | 16 | 9.9 | 11 | 45 | 17 |
| 8 | 11 | 61 | 50 | 41 | 15 | 16 | 22 | 15 | 10 | 49 | 49 | 15 |
| 9 | 28 | 37 | 34 | 30 | 16 | 16 | 18 | 14 | 10 | 13 | 16 | 14 |
| 10 | 20 | 28 | 31 | 66 | 15 | 30 | 18 | 16 | 9.9 | 11 | 13 | 13 |
| 11 | 12 | 23 | 25 | 64 | 23 | 26 | 25 | 14 | 12 | 9.6 | 11 | 13 |
| 12 | 11 | 21 | 23 | 38 | 38 | 19 | 17 | 13 | 17 | 9.6 | 11 | 13 |
| 13 | 10 | 38 | 33 | 27 | 34 | 24 | 17 | 16 | 21 | 9.2 | 11 | 13 |
| 14 | 11 | 114 | 22 | 86 | 36 | 19 | 22 | 16 | 16 | 8.6 | 14 | 42 |
| 15 | 15 | 101 | 52 | 53 | 29 | 18 | 22 | 13 | 30 | 9.6 | 37 | 14 |
| 16 | 19 | 103 | 30 | 41 | 50 | 20 | 16 | 15 | 24 | 8.6 | 27 | 11 |
| 17 | 74 | 50 | 24 | 36 | 52 | 19 | 17 | 15 | 14 | 8.6 | 14 | 9.9 |
| 18 | 81 | 32 | 21 | 31 | 36 | 36 | 22 | 17 | 12 | 8.0 | 13 | 8.9 |
| 19 | 30 | 27 | 19 | 22 | 34 | 19 | 20 | 12 | 11 | 7.6 | 45 | 8.0 |
| 20 | 20 | 24 | 19 | 20 | 56 | 20 | 57 | 12 | 10 | 8.9 | 31 | 7.6 |
| 21 | 64 | 23 | 21 | 19 | 27 | 19 | 25 | 11 | 9.8 | 8.9 | 21 | 7.6 |
| 22 | 72 | 32 | 29 | 42 | 22 | 59 | 21 | 12 | 9.5 | 8.6 | 18 | 8.6 |
| 23 | 42 | 32 | 70 | 31 | 22 | 31 | 22 | 11 | 11 | 8.6 | 18 | 16 |
| 24 | 22 | 35 | 54 | 21 | 59 | 86 | 45 | 22 | 11 | 8.3 | 17 | 11 |
| 25 | 31 | 27 | 54 | 20 | 65 | 36 | 28 | 15 | 31 | 8.3 | 26 | 9.2 |
| 26 | 33 | 54 | 188 | 24 | 46 | 44 | 21 | 12 | 12 | 8.0 | 18 | 8.9 |
| 27 | 49 | 35 | 65 | 98 | 92 | 31 | 19 | 21 | 10 | 8.0 | 15 | 8.6 |
| 28 | 47 | 24 | 38 | 30 | 69 | 26 | 17 | 12 | 10 | 8.0 | 15 | 8.6 |
| 29 | 170 | 23 | 47 | 22 | 42 | 20 | 16 | 19 | 10 | 8.3 | 14 | 8.6 |
| 30 | 115 | 34 | 36 | 21 | --- | 20 | 14 | 18 | 10 | 8.0 | 14 | 8.6 |
| 31 | 50 | --- | 26 | 20 | --- | 51 | --- | 19 | --- | 8.0 | 14 | --- |
| TOTAL | 1166.6 | 1285 | 1759 | 1118 | 1003 | 852 | 654 | 502 | 399.1 | 333.8 | 579.7 | 410.1 |
| MEAN | 37.6 | 42.8 | 56.7 | 36.1 | 34.6 | 27.5 | 21.8 | 16.2 | 13.3 | 10.8 | 18.7 | 13.7 |
| MAX | 170 | 114 | 219 | 98 | 92 | 86 | 57 | 34 | 31 | 49 | 49 | 42 |
| MIN | 7.2 | 21 | 19 | 19 | 15 | 16 | 14 | 11 | 9.5 | 7.6 | 7.3 | 7.6 |
| CFSM | 3.13 | 3.57 | 4.73 | 3.01 | 2.88 | 2.29 | 1.82 | 1.35 | 1.11 | .90 | 1.56 | 1.14 |
| IN. | 3.62 | 3.98 | 5.45 | 3.47 | 3.11 | 2.64 | 2.03 | 1.56 | 1.24 | 1.03 | 1.80 | 1.27 |
| AC-FT | 2310 | 2550 | 3490 | 2220 | 1990 | 1690 | 1300 | 996 | 792 | 662 | 1150 | 813 |

CAL YR 1975 TOTAL 11085.8 MEAN 30.4 MAX 221 MIN 6.2 CFSM 2.53 IN 34.36 AC-FT 21990
WTR YR 1976 TOTAL 10062.3 MEAN 27.5 MAX 219 MIN 7.2 CFSM 2.29 IN 31.19 AC-FT 19960

## 12120500 JUANITA CREEK NEAR KIRKLAND, WA

LOCATION.--Lat 47°42'20", long 122°12'56", in SW¼SE¼ sec.30, T.26 N., R.5 E., King County, Hydrologic Unit 17110012, on right bank 0.1 mi (0.2 km) upstream from mouth and Lake Washington, and 1.7 mi (2.7 km) north of Kirkland.

DRAINAGE AREA.--6.69 mi² (17.33 km²). Prior to May 3, 1972, 6.43 mi² (16.65 km²).

PERIOD OF RECORD.--June to October 1945, September 1963 to June 1973, October 1973 to April 1974, October 1974 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Recording gage. Altitude of gage is 20 ft (6 m), from topographic map. Prior to Oct. 2, 1945, water-stage recorder at site 1,500 ft (457 m) upstream at different datum. Sept. 1, 1963 to May 2, 1972, water-stage recorder and concrete control at site 1,000 ft (305 m) upstream at different datum. May 3, 1972 to Oct. 27, 1972 nonrecording gage at present site and different datum.

REMARKS.--Records good. No known regulation. Probably several small diversions above station for domestic use.

AVERAGE DISCHARGE:--11 years (water years 1964-72, 1975-76) 10.9 ft³/s (0.309 m³/s), 22.13 in/yr (562 mm/yr), 7,900 acre-ft/yr 9.74 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 257 ft³/s (7.28 m³/s) Dec. 4, 1975; maximum gage height, 5.09 ft (1.551 m), Dec. 15, 1973, backwater from debris; minimum discharge, 0.58 ft³/s (0.016 m³/s) Sept. 13, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 257 ft³/s (7.28 m³/s) Dec. 4, gage height, 4.35 ft (1.326 m); minimum discharge, 2.8 ft³/s (0.079 m³/s) Oct. 1, July 29, 30, 31; minimum gage height, 0.43 ft (0.131 m) July 29, 30, 31, may have been lower during period of no gage height record July 19-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.1 | 17 | 29 | 19 | 9.4 | 16 | 12 | 7.1 | 5.9 | 5.8 | 3.1 | 3.6 |
| 2 | 3.1 | 24 | 86 | 19 | 9.1 | 14 | 10 | 14 | 6.2 | 4.8 | 3.1 | 3.5 |
| 3 | 9.4 | 22 | 117 | 20 | 9.1 | 12 | 10 | 8.4 | 5.6 | 6.4 | 3.2 | 3.5 |
| 4 | 5.1 | 19 | 164 | 27 | 8.1 | 11 | 9.0 | 7.7 | 5.6 | 7.5 | 3.1 | 3.5 |
| 5 | 15 | 18 | 69 | 18 | 7.4 | 11 | 8.7 | 7.7 | 6.5 | 6.5 | 4.8 | 5.7 |
| 6 | 6.2 | 49 | 37 | 16 | 7.1 | 10 | 8.7 | 6.5 | 7.1 | 8.1 | 3.9 | 7.4 |
| 7 | 5.1 | 63 | 31 | 23 | 7.4 | 10 | 8.4 | 6.2 | 5.6 | 7.8 | 19 | 4.2 |
| 8 | 4.9 | 59 | 24 | 19 | 7.1 | 9.7 | 11 | 5.9 | 7.1 | 12 | 9.5 | 3.8 |
| 9 | 10 | 45 | 16 | 15 | 7.1 | 9.4 | 8.7 | 5.6 | 7.7 | 4.8 | 5.2 | 3.6 |
| 10 | 6.5 | 31 | 14 | 28 | 6.9 | 14 | 8.4 | 6.2 | 9.7 | 4.3 | 4.5 | 3.6 |
| 11 | 5.1 | 24 | 12 | 28 | 11 | 11 | 11 | 5.6 | 11 | 4.0 | 4.1 | 5.8 |
| 12 | 4.9 | 21 | 11 | 22 | 12 | 16 | 8.1 | 5.4 | 14 | 4.0 | 3.9 | 7.8 |
| 13 | 4.6 | 45 | 15 | 18 | 16 | 19 | 7.7 | 5.4 | 6.2 | 3.9 | 4.1 | 7.2 |
| 14 | 5.4 | 111 | 11 | 58 | 12 | 12 | 9.7 | 5.4 | 5.6 | 3.8 | 4.0 | 14 |
| 15 | 4.9 | 125 | 22 | 45 | 25 | 10 | 14 | 5.1 | 11 | 3.8 | 8.0 | 5.2 |
| 16 | 7.7 | 116 | 12 | 39 | 29 | 11 | 8.7 | 6.2 | 6.2 | 3.4 | 5.3 | 4.3 |
| 17 | 29 | 54 | 10 | 40 | 26 | 11 | 11 | 5.6 | 4.4 | 3.3 | 4.2 | 3.9 |
| 18 | 15 | 38 | 9.4 | 36 | 17 | 16 | 11 | 4.9 | 4.1 | 3.3 | 3.9 | 3.7 |
| 19 | 8.4 | 31 | 9.4 | 32 | 15 | 11 | 11 | 5.4 | 3.9 | 3.3 | 16 | 3.6 |
| 20 | 6.5 | 26 | 10 | 30 | 13 | 12 | 33 | 5.6 | 3.9 | 3.4 | 9.0 | 3.5 |
| 21 | 16 | 24 | 11 | 28 | 10 | 10 | 19 | 4.9 | 4.1 | 3.6 | 5.2 | 3.4 |
| 22 | 12 | 38 | 12 | 44 | 8.4 | 20 | 12 | 4.6 | 4.1 | 3.3 | 4.5 | 4.0 |
| 23 | 9.1 | 33 | 34 | 39 | 8.1 | 15 | 11 | 4.6 | 4.6 | 3.2 | 4.4 | 4.7 |
| 24 | 7.1 | 43 | 27 | 26 | 22 | 41 | 19 | 7.4 | 15 | 3.0 | 4.2 | 4.0 |
| 25 | 13 | 32 | 29 | 12 | 27 | 18 | 14 | 5.4 | 17 | 2.9 | 7.9 | 3.8 |
| 26 | 13 | 47 | 113 | 16 | 22 | 17 | 10 | 5.1 | 9.9 | 2.9 | 4.5 | 3.6 |
| 27 | 15 | 35 | 45 | 36 | 48 | 13 | 9.1 | 8.1 | 7.7 | 3.0 | 4.2 | 3.6 |
| 28 | 17 | 28 | 31 | 16 | 30 | 12 | 8.4 | 5.4 | 4.9 | 3.0 | 3.8 | 3.5 |
| 29 | 61 | 24 | 37 | 12 | 22 | 11 | 7.7 | 8.4 | 4.7 | 3.4 | 3.8 | 3.3 |
| 30 | 50 | 30 | 28 | 11 | --- | 11 | 7.1 | 6.5 | 5.0 | 3.0 | 3.7 | 3.3 |
| 31 | 25 | --- | 22 | 10 | --- | 23 | --- | 8.4 | --- | 3.0 | 3.6 | --- |
| TOTAL | 398.1 | 1273 | 1097.8 | 801 | 452.1 | 437.1 | 337.4 | 198.7 | 214.3 | 138.5 | 171.7 | 138.6 |
| MEAN | 12.8 | 42.4 | 35.4 | 25.8 | 15.6 | 14.1 | 11.2 | 6.41 | 7.14 | 4.47 | 5.54 | 4.62 |
| MAX | 61 | 125 | 164 | 58 | 48 | 41 | 33 | 14 | 17 | 12 | 19 | 14 |
| MIN | 3.1 | 17 | 9.4 | 10 | 6.8 | 9.4 | 7.1 | 4.6 | 3.9 | 2.9 | 3.1 | 3.3 |
| CFSM | 1.91 | 6.34 | 5.29 | 3.86 | 2.33 | 2.11 | 1.67 | .96 | 1.07 | .67 | .83 | .69 |
| IN. | 2.21 | 7.08 | 6.10 | 4.45 | 2.51 | 2.43 | 1.88 | 1.10 | 1.19 | .77 | .95 | .77 |
| AC-FT | 790 | 2520 | 2180 | 1590 | 897 | 867 | 669 | 394 | 425 | 275 | 341 | 275 |

CAL YR 1975 TOTAL 6059.4 MEAN 16.6 MAX 164 MIN 2.6 CFSM 2.48 IN 33.69 AC-FT 12020
WTR YR 1976 TOTAL 5658.3 MEAN 15.5 MAX 164 MIN 2.9 CFSM 2.32 IN 31.46 AC-FT 11220

## 12121510 EAST FORK ISSAQUAH CREEK AT MOUTH, AT ISSAQUAH, WA

LOCATION.--Lat 47°32'08", long 122°02'11", in NE¼SE¼ sec.28, T.24 N., R.6 E., King County, Hydrologic Unit 17110012, on right bank between road and N.P. Railroad, 1.2 mi (1.9 km) downstream from former site "East Fork Issaquah Creek at Issaquah 12121500", in Issaquah and at mile 0.1 (0.2 km).

DRAINAGE AREA.--9.50 mi² (24.60 km²).

PERIOD OF RECORD.--March 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 76 ft (23.2 m) from topographic map.

REMARKS.--Records good. Many minor diversions for irrigation and domestic use above station. At times dairy products plant discharges water just above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 540 ft³/s (15.3 m³/s) Dec. 3, 1975, gage height, 5.39 ft (1.643 m); minimum, 0.80 ft³/s (0.023 m³/s) July 27, 1975, gage height, 0.87 ft (0.265 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 540 ft³/s (15.3 m³/s) Dec. 3; minimum, 2.8 ft³/s (0.08 m³/s) Oct. 1, 2, Aug. 3; minimum gage height, 0.95 ft (0.290 m) Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.7 | 42 | 47 | 51 | 31 | 46 | 35 | 20 | 14 | 8.5 | 5.3 | 6.5 |
| 2 | 3.7 | 33 | 181 | 47 | 29 | 39 | 33 | 21 | 13 | 8.1 | 5.3 | 5.7 |
| 3 | 5.8 | 25 | 436 | 47 | 26 | 35 | 30 | 22 | 12 | 8.1 | 4.9 | 5.3 |
| 4 | 5.5 | 20 | 328 | 62 | 25 | 32 | 28 | 21 | 11 | 10 | 5.3 | 5.3 |
| 5 | 13 | 18 | 153 | 66 | 22 | 29 | 26 | 21 | 9.8 | 8.1 | 4.9 | 10 |
| 6 | 12 | 21 | 85 | 60 | 21 | 27 | 25 | 22 | 10 | 7.3 | 5.7 | 26 |
| 7 | 7.1 | 30 | 94 | 64 | 20 | 25 | 24 | 21 | 9.4 | 7.7 | 13 | 15 |
| 8 | 5.9 | 41 | 102 | 82 | 19 | 24 | 24 | 19 | 8.9 | 19 | 13 | 12 |
| 9 | 7.5 | 36 | 82 | 78 | 19 | 23 | 23 | 18 | 8.9 | 12 | 7.7 | 11 |
| 10 | 7.8 | 28 | 72 | 95 | 18 | 29 | 22 | 16 | 8.5 | 9.8 | 6.1 | 9.4 |
| 11 | 6.0 | 22 | 61 | 108 | 21 | 33 | 22 | 16 | 8.5 | 8.9 | 4.9 | 8.5 |
| 12 | 5.7 | 18 | 53 | 90 | 41 | 29 | 23 | 16 | 9.4 | 8.9 | 4.5 | 8.5 |
| 13 | 5.6 | 20 | 48 | 74 | 35 | 27 | 21 | 15 | 11 | 8.1 | 4.9 | 8.1 |
| 14 | 6.1 | 42 | 43 | 125 | 44 | 26 | 24 | 15 | 8.9 | 7.3 | 5.7 | 14 |
| 15 | 7.6 | 59 | 64 | 149 | 45 | 25 | 31 | 14 | 13 | 6.5 | 12 | 12 |
| 16 | 7.7 | 64 | 60 | 103 | 78 | 24 | 26 | 13 | 20 | 6.1 | 12 | 10 |
| 17 | 19 | 48 | 53 | 78 | 79 | 25 | 23 | 12 | 15 | 5.7 | 8.5 | 8.9 |
| 18 | 35 | 35 | 47 | 64 | 78 | 39 | 25 | 12 | 12 | 5.7 | 7.3 | 8.9 |
| 19 | 20 | 28 | 44 | 53 | 61 | 35 | 27 | 11 | 11 | 5.3 | 8.1 | 8.1 |
| 20 | 16 | 23 | 41 | 47 | 54 | 33 | 53 | 12 | 11 | 5.7 | 15 | 7.7 |
| 21 | 26 | 19 | 38 | 41 | 45 | 30 | 45 | 11 | 10 | 5.7 | 14 | 6.9 |
| 22 | 33 | 19 | 39 | 41 | 41 | 36 | 37 | 11 | 9.8 | 5.7 | 12 | 7.3 |
| 23 | 25 | 24 | 50 | 36 | 37 | 38 | 33 | 11 | 8.9 | 5.3 | 11 | 7.7 |
| 24 | 20 | 24 | 66 | 33 | 50 | 80 | 44 | 12 | 9.4 | 5.7 | 9.8 | 7.3 |
| 25 | 24 | 22 | 69 | 30 | 54 | 61 | 36 | 13 | 17 | 4.9 | 13 | 6.5 |
| 26 | 25 | 30 | 128 | 30 | 48 | 54 | 33 | 11 | 12 | 4.9 | 9.8 | 6.1 |
| 27 | 28 | 29 | 100 | 68 | 66 | 50 | 30 | 12 | 11 | 5.3 | 8.5 | 5.7 |
| 28 | 37 | 25 | 73 | 50 | 65 | 45 | 27 | 11 | 9.4 | 4.9 | 7.7 | 5.7 |
| 29 | 96 | 21 | 73 | 43 | 54 | 39 | 24 | 14 | 8.5 | 5.3 | 7.3 | 5.3 |
| 30 | 108 | 35 | 70 | 38 | --- | 35 | 22 | 15 | 8.1 | 5.3 | 7.7 | 5.7 |
| 31 | 69 | --- | 58 | 34 | --- | 41 | --- | 14 | --- | 4.5 | 7.3 | --- |
| TOTAL | 691.7 | 901 | 2858 | 1987 | 1226 | 1114 | 876 | 472 | 329.4 | 224.3 | 262.2 | 265.1 |
| MEAN | 22.3 | 30.0 | 92.2 | 64.1 | 42.3 | 35.9 | 29.2 | 15.2 | 11.0 | 7.24 | 8.46 | 8.84 |
| MAX | 108 | 64 | 436 | 149 | 79 | 80 | 53 | 22 | 20 | 19 | 15 | 26 |
| MIN | 3.7 | 18 | 38 | 30 | 18 | 23 | 21 | 11 | 8.1 | 4.5 | 4.5 | 5.3 |
| CFSM | 2.35 | 3.16 | 9.71 | 6.75 | 4.45 | 3.78 | 3.07 | 1.60 | 1.16 | .76 | .89 | .93 |
| IN. | 2.71 | 3.53 | 11.19 | 7.78 | 4.80 | 4.36 | 3.43 | 1.85 | 1.29 | .88 | 1.03 | 1.04 |
| AC-FT | 1370 | 1790 | 5670 | 3940 | 2430 | 2210 | 1740 | 936 | 653 | 445 | 520 | 526 |

WTR YR 1976 TOTAL 11206.7 MEAN 30.6 MAX 436 MIN 3.7 CFSM 3.22 IN 43.88 AC-FT 22230

## 12121600 ISSAQUAH CREEK NEAR MOUTH, NEAR ISSAQUAH, WA

LOCATION.--Lat 47°33'09", long 122°02'48", in SE¼NW¼ sec.21, T.24 N., R.6 E., King County, Hydrologic Unit 17110012, on right bank 30 ft (9 m) downstream from SE 56th Street bridge, 0.7 mi (1.1 km) downstream from North Fork, 1.2 mi (1.9 km) upstream from mouth, and 1.6 mi (2.6 km) northwest of Issaquah.

DRAINAGE AREA.--54.7 mi² (141.7 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1963 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 40 ft (12 m), from topographic map.

REMARKS.--Water-discharge records good. Many minor diversions for irrigation and domestic use above station.

AVERAGE DISCHARGE.--13 years (1963-76), 152 ft³/s (4.305 m³/s) 37.74 in/yr (959 mm/yr), 110,100 acre-ft/yr (136 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,870 ft³/s (81.3 m³/s) Dec. 3, 1975, gage height, 11.46 ft (3.493 m); minimum, 21 ft³/s (0.59 m³/s) Sept. 8, 9, 10, 1966, Aug. 29, Sept. 7, 8, 9, 1967, Sept. 5, 6, 1973, Sept. 23, 1974; minimum gage height, 2.34 ft (0.713 m) Sept. 21, 22, 29, 30, Oct. 12, 13, 16, 1963.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft³/s (22.7 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 30 | 1500 | 1,160 | 32.9 | 7.46 | 2.274 | Dec. 26 | 1300 | 943 | 26.7 | 6.81 | 2.076 |
| Dec. 3 | 0200 | *2,870 | 81.3 | *11.46 | 3.493 | Jan. 15 | 2400 | 1,230 | 34.8 | 7.66 | 2.335 |

Minimum discharge, 30 ft³/s (0.85 m³/s) Oct. 1, gage height. 2.89 ft (0.881 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 32 | 415 | 483 | 278 | 189 | 276 | 210 | 108 | 73 | 48 | 32 | 41 |
| 2 | 32 | 321 | 1540 | 234 | 174 | 234 | 187 | 135 | 67 | 47 | 32 | 40 |
| 3 | 40 | 269 | 2300 | 227 | 164 | 204 | 174 | 121 | 61 | 47 | 33 | 38 |
| 4 | 41 | 229 | 1610 | 319 | 149 | 185 | 162 | 111 | 58 | 53 | 33 | 36 |
| 5 | 60 | 202 | 844 | 333 | 138 | 170 | 155 | 153 | 55 | 48 | 33 | 51 |
| 6 | 61 | 208 | 544 | 303 | 131 | 160 | 153 | 133 | 55 | 43 | 33 | 126 |
| 7 | 44 | 254 | 562 | 306 | 128 | 156 | 140 | 116 | 55 | 45 | 86 | 75 |
| 8 | 43 | 303 | 565 | 383 | 125 | 149 | 147 | 106 | 55 | 96 | 96 | 59 |
| 9 | 49 | 269 | 443 | 353 | 121 | 143 | 138 | 97 | 55 | 61 | 54 | 51 |
| 10 | 51 | 225 | 363 | 385 | 114 | 172 | 126 | 96 | 51 | 54 | 45 | 46 |
| 11 | 43 | 200 | 294 | 463 | 130 | 194 | 153 | 93 | 52 | 50 | 40 | 43 |
| 12 | 41 | 181 | 255 | 413 | 225 | 164 | 133 | 85 | 55 | 47 | 38 | 42 |
| 13 | 40 | 191 | 239 | 335 | 189 | 153 | 126 | 81 | 59 | 46 | 38 | 42 |
| 14 | 41 | 418 | 200 | 730 | 204 | 147 | 140 | 79 | 52 | 43 | 42 | 63 |
| 15 | 49 | 505 | 340 | 1070 | 212 | 140 | 156 | 75 | 67 | 42 | 80 | 56 |
| 16 | 48 | 496 | 308 | 961 | 373 | 138 | 131 | 70 | 130 | 41 | 96 | 49 |
| 17 | 87 | 395 | 253 | 640 | 390 | 151 | 128 | 69 | 91 | 39 | 62 | 45 |
| 18 | 190 | 306 | 221 | 499 | 425 | 206 | 143 | 66 | 70 | 38 | 54 | 44 |
| 19 | 97 | 253 | 194 | 388 | 343 | 185 | 145 | 64 | 63 | 37 | 63 | 42 |
| 20 | 74 | 215 | 175 | 324 | 338 | 172 | 264 | 63 | 59 | 38 | 134 | 39 |
| 21 | 125 | 189 | 160 | 278 | 283 | 156 | 210 | 59 | 58 | 38 | 84 | 37 |
| 22 | 195 | 183 | 172 | 278 | 248 | 194 | 179 | 59 | 55 | 37 | 66 | 39 |
| 23 | 136 | 217 | 239 | 241 | 225 | 198 | 162 | 59 | 52 | 36 | 59 | 41 |
| 24 | 102 | 212 | 338 | 210 | 276 | 385 | 223 | 66 | 55 | 35 | 54 | 40 |
| 25 | 123 | 206 | 348 | 191 | 310 | 292 | 191 | 69 | 73 | 34 | 70 | 38 |
| 26 | 130 | 289 | 793 | 185 | 271 | 266 | 166 | 60 | 60 | 34 | 59 | 36 |
| 27 | 132 | 315 | 673 | 460 | 360 | 260 | 149 | 70 | 55 | 34 | 52 | 35 |
| 28 | 166 | 257 | 453 | 322 | 378 | 246 | 137 | 63 | 51 | 33 | 48 | 34 |
| 29 | 673 | 212 | 438 | 271 | 315 | 217 | 125 | 70 | 49 | 32 | 45 | 34 |
| 30 | 1020 | 363 | 443 | 232 | --- | 202 | 114 | 81 | 47 | 32 | 44 | 33 |
| 31 | 714 | --- | 338 | 208 | --- | 255 | --- | 70 | --- | 32 | 42 | --- |
| TOTAL | 4679 | 8298 | 16128 | 11820 | 6928 | 6170 | 4767 | 2647 | 1838 | 1340 | 1747 | 1395 |
| MEAN | 151 | 277 | 520 | 381 | 239 | 199 | 159 | 85.4 | 61.3 | 43.2 | 56.4 | 46.5 |
| MAX | 1020 | 505 | 2300 | 1070 | 425 | 385 | 264 | 153 | 130 | 96 | 134 | 126 |
| MIN | 32 | 181 | 160 | 185 | 114 | 138 | 114 | 59 | 47 | 32 | 32 | 33 |
| CFSM | 2.76 | 5.06 | 9.51 | 6.97 | 4.37 | 3.64 | 2.91 | 1.56 | 1.12 | .79 | 1.03 | .85 |
| IN. | 3.18 | 5.64 | 10.97 | 8.04 | 4.71 | 4.20 | 3.24 | 1.80 | 1.25 | .91 | 1.19 | .95 |
| AC-FT | 9280 | 16460 | 31990 | 23440 | 13740 | 12240 | 9460 | 5250 | 3650 | 2660 | 3470 | 2770 |

CAL YR 1975 TOTAL 70365 MEAN 193 MAX 2300 MIN 29 CFSM 3.53 IN 47.85 AC-FT 139600
WTR YR 1976 TOTAL 67757 MEAN 185 MAX 2300 MIN 32 CFSM 3.38 IN 46.08 AC-FT 134400

## 12121600 ISSAQUAH CREEK NEAR MOUTH, NEAR ISSAQUAH, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965-71, 1974, October 1975 to September 1976 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: September 1970 to September 1971.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 16... | 1110 | 44 | 120 | 7.6 | 11.2 | 42 | 6 | 10.2 | B5000 | B240 | 49 | 2 |
| 22... | 1230 | 185 | 95 | 7.3 | 9.5 | 83 | 12 | 10.9 | B5000 | 300 | 35 | 5 |
| NOV | | | | | | | | | | | | |
| 05... | 1045 | 198 | 100 | 7.4 | 10.4 | 42 | 6 | 10.4 | B600 | B20 | 38 | 4 |
| 19... | 1140 | 255 | 92 | 7.3 | 5.4 | 38 | 5 | 12.1 | B700 | 52 | 35 | 7 |
| DEC | | | | | | | | | | | | |
| 03... | 1025 | 2260 | 54 | 7.0 | 9.1 | 179 | 320 | 10.6 | B3200 | <100 | 17 | 6 |
| 17... | 1010 | 257 | 84 | 7.0 | 5.0 | 42 | 22 | 12.4 | B400 | B55 | 33 | 10 |
| JAN | | | | | | | | | | | | |
| 14... | 1200 | 874 | 60 | 7.2 | 7.0 | 79 | 78 | 12.0 | B15000 | B500 | 23 | 4 |
| 28... | 1140 | 324 | 80 | 7.4 | 9.2 | 17 | 14 | 11.6 | B1000 | B55 | 30 | 0 |
| FEB | | | | | | | | | | | | |
| 04... | 1100 | 151 | 98 | 7.4 | 4.9 | 25 | 6 | 12.8 | B350 | B12 | 38 | 5 |
| 19... | 1110 | 328 | 76 | 7.2 | 5.5 | 25 | 5 | 12.6 | 920 | B22 | 28 | 4 |
| MAR | | | | | | | | | | | | |
| 03... | 1135 | 204 | 90 | 7.1 | 4.4 | 29 | 7 | 13.1 | 200 | B12 | 32 | 2 |
| 18... | 1200 | 214 | 86 | 7.4 | 8.1 | 38 | 8 | 11.8 | 900 | 54 | 29 | 2 |
| APR | | | | | | | | | | | | |
| 07... | 1245 | 140 | 92 | 6.9 | 9.8 | 21 | 2 | 11.6 | 260 | 56 | 33 | 0 |
| 21... | 1150 | 210 | 80 | 7.5 | 9.3 | 25 | 4 | 12.3 | B300 | B50 | 30 | 0 |
| MAY | | | | | | | | | | | | |
| 05... | 1145 | 174 | 90 | 7.6 | 10.6 | 42 | 8 | 11.3 | 1200 | 270 | 37 | 3 |
| 19... | 1245 | 64 | 112 | 7.1 | 12.0 | 90 | 80 | 11.0 | 3400 | B50 | 43 | 0 |
| JUN | | | | | | | | | | | | |
| 03... | 1230 | 63 | 110 | 7.6 | 11.4 | 23 | 5 | 12.0 | B2000 | 58 | 41 | 0 |
| 16... | 1220 | 147 | 90 | 7.3 | 12.5 | 75 | 30 | 10.3 | 3400 | >160 | 32 | 1 |
| JUL | | | | | | | | | | | | |
| 08... | 1130 | 114 | 100 | 7.6 | 15.0 | 146 | 40 | 9.9 | B14000 | 2000 | 36 | 0 |
| 21... | 1145 | 38 | 132 | 7.8 | 14.3 | 21 | 5 | 10.7 | B2000 | B770 | 49 | 0 |
| AUG | | | | | | | | | | | | |
| 04... | 1100 | 34 | 131 | 7.7 | 14.4 | 21 | 2 | 10.4 | 1800 | 220 | 54 | 0 |
| 18... | 1053 | 54 | 113 | 7.6 | 13.5 | 29 | 3 | 10.2 | >1400 | B200 | 43 | 3 |
| SEP | | | | | | | | | | | | |
| 09... | 1035 | 52 | 112 | 7.7 | 12.2 | 25 | 2 | 10.8 | 2200 | 290 | 44 | 0 |
| 29... | 1050 | 34 | 129 | 7.6 | 13.7 | -- | 3 | 9.9 | 840 | 170 | 50 | 0 |

B Results based upon colony counts outside the ideal range.

## 12121600 ISSAQUAH CREEK NEAR MOUTH, NEAR ISSAQUAH, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | CARBONATE (CO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | TOTAL NITRATE (N) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 16... | 12 | 4.6 | 5.7 | 1.1 | 57 | 0 | 47 | 2.3 | 6.2 | 3.9 | .66 |
| 22... | 9.2 | 2.9 | 4.2 | .9 | 36 | 0 | 30 | 2.9 | 5.3 | 3.1 | 1.4 |
| NOV | | | | | | | | | | | |
| 05... | 9.3 | 3.5 | 4.5 | .7 | 41 | 0 | 34 | 2.6 | 5.8 | 2.4 | 1.2 |
| 19... | 8.9 | 3.2 | 4.0 | .6 | 35 | 0 | 29 | 2.8 | 6.5 | 2.7 | 1.3 |
| DEC | | | | | | | | | | | |
| 03... | 4.3 | 1.4 | 2.8 | .8 | 13 | 0 | 11 | 2.1 | 5.8 | 2.0 | 1.4 |
| 17... | 9.6 | 2.2 | 4.0 | .4 | 28 | 0 | 23 | 4.5 | 5.3 | -- | 1.1 |
| JAN | | | | | | | | | | | |
| 14... | 5.3 | 2.4 | 2.7 | .8 | 23 | 0 | 19 | 2.3 | 5.3 | 2.5 | .91 |
| 28... | 7.9 | 2.5 | 3.9 | .8 | 37 | 0 | 30 | 2.4 | 5.6 | 1.7 | .95 |
| FEB | | | | | | | | | | | |
| 04... | 9.3 | 3.6 | 4.5 | .7 | 40 | 0 | 33 | 2.5 | 6.4 | 2.8 | .93 |
| 19... | 7.4 | 2.4 | 3.7 | .8 | 30 | 0 | 25 | 3.0 | 6.2 | 2.4 | 1.0 |
| MAR | | | | | | | | | | | |
| 03... | 8.3 | 2.7 | 4.1 | .6 | 37 | 0 | 30 | 4.7 | 6.9 | 2.3 | .97 |
| 18... | 7.6 | 2.4 | 4.7 | .5 | 33 | 0 | 27 | 2.1 | 5.5 | 2.6 | .75 |
| APR | | | | | | | | | | | |
| 07... | 8.6 | 2.7 | 4.2 | .6 | 43 | 0 | 35 | 8.7 | 5.4 | 2.0 | .75 |
| 21... | 7.5 | 2.8 | 3.7 | .5 | 37 | 0 | 30 | 1.9 | 4.6 | 2.0 | .73 |
| MAY | | | | | | | | | | | |
| 05... | 8.7 | 3.8 | 5.0 | .7 | 42 | 0 | 34 | 1.7 | 4.6 | 2.3 | .62 |
| 19... | 11 | 3.8 | 5.4 | .7 | 53 | 0 | 43 | 6.7 | 7.0 | 2.5 | .66 |
| JUN | | | | | | | | | | | |
| 03... | 10 | 3.8 | 5.1 | .7 | 52 | 0 | 43 | 2.1 | 7.2 | 2.6 | .55 |
| 16... | 8.0 | 2.9 | 4.1 | .7 | 38 | 0 | 31 | 3.0 | 6.1 | 2.1 | .58 |
| JUL | | | | | | | | | | | |
| 08... | 9.1 | 3.3 | 4.9 | .9 | 44 | 0 | 36 | 1.8 | 6.1 | 3.0 | .62 |
| 21... | 12 | 4.5 | 5.8 | .8 | 63 | 0 | 52 | 1.6 | 6.6 | 3.0 | .53 |
| AUG | | | | | | | | | | | |
| 04... | 14 | 4.7 | 6.4 | .9 | 66 | 0 | 54 | 2.1 | 7.8 | 3.0 | .38 |
| 18... | 11 | 3.8 | 5.4 | .8 | 49 | 0 | 40 | 2.0 | 7.4 | 2.6 | .75 |
| SEP | | | | | | | | | | | |
| 09... | 11 | 3.9 | 5.5 | .8 | 55 | 0 | 45 | 1.8 | 7.0 | 2.4 | .61 |
| 29... | 13 | 4.3 | 5.8 | .9 | 64 | 0 | 53 | 2.6 | 7.0 | 2.5 | .54 |

| DATE | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL ORGANIC NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) | DISSOLVED CHROMIUM (CR) (UG/L) | DISSOLVED COPPER (CU) (UG/L) | DISSOLVED LEAD (PB) (UG/L) | TOTAL MERCURY (HG) (UG/L) | DISSOLVED ZINC (ZN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 16... | .02 | .23 | .15 | .38 | .08 | .03 | 0 | 1 | 9 | .3 | 0 |
| 22... | .01 | .15 | .38 | .53 | .07 | .01 | 0 | 1 | 3 | .0 | 4 |
| NOV | | | | | | | | | | | |
| 05... | .01 | .12 | .24 | .36 | .04 | .01 | 0 | 0 | 2 | .0 | 0 |
| 19... | .00 | .08 | .33 | .41 | .03 | .00 | <10 | 2 | 9 | .0 | 0 |
| DEC | | | | | | | | | | | |
| 03... | .00 | .14 | 1.8 | 1.9 | .75 | .01 | 0 | 3 | 9 | .1 | 10 |
| 17... | .01 | .08 | .20 | .28 | .07 | .00 | 0 | 1 | 3 | .1 | 0 |
| JAN | | | | | | | | | | | |
| 14... | .04 | .52 | .58 | 1.1 | .30 | .01 | 0 | 4 | 6 | .0 | 10 |
| 28... | .01 | .10 | .28 | .38 | .05 | .01 | 0 | 1 | 2 | .0 | 0 |
| FEB | | | | | | | | | | | |
| 04... | .00 | .08 | .14 | .22 | .03 | .01 | 0 | 2 | 7 | .1 | 0 |
| 19... | .00 | .04 | .18 | .22 | .02 | .01 | 0 | 3 | 11 | .0 | 10 |
| MAR | | | | | | | | | | | |
| 03... | .01 | .04 | .22 | .26 | .02 | .00 | 0 | 0 | 2 | .0 | 0 |
| 18... | .01 | .08 | .20 | .28 | .03 | .01 | 0 | 3 | 11 | .0 | 0 |
| APR | | | | | | | | | | | |
| 07... | .00 | .06 | .14 | .20 | .02 | .00 | 0 | 1 | 2 | .0 | 0 |
| 21... | .00 | .08 | .18 | .26 | .02 | .01 | 0 | 1 | 2 | .0 | 0 |
| MAY | | | | | | | | | | | |
| 05... | .01 | .11 | .23 | .34 | .04 | .01 | 0 | 3 | 8 | .0 | 0 |
| 19... | .04 | .46 | .22 | .68 | .26 | .02 | 0 | 2 | 5 | .0 | 0 |
| JUN | | | | | | | | | | | |
| 03... | .01 | .08 | .17 | .25 | .03 | .01 | 0 | 1 | 7 | .0 | 0 |
| 16... | .02 | .18 | .51 | .69 | .16 | .01 | 0 | 9 | 15 | .0 | 0 |
| JUL | | | | | | | | | | | |
| 08... | .02 | .31 | .40 | .71 | .14 | .01 | 0 | 2 | 8 | .0 | 0 |
| 21... | .01 | .11 | .10 | .21 | .03 | .01 | 0 | 1 | 1 | .0 | 0 |
| AUG | | | | | | | | | | | |
| 04... | .01 | .09 | .12 | .21 | .04 | .02 | 0 | 4 | 19 | .0 | 20 |
| 18... | .01 | .09 | .12 | .21 | .04 | .01 | 0 | 0 | 4 | .0 | 0 |
| SEP | | | | | | | | | | | |
| 09... | .01 | .08 | .13 | .21 | .03 | .01 | 0 | 3 | 4 | .0 | 0 |
| 29... | .01 | .08 | .15 | .23 | .04 | .01 | 0 | 1 | 3 | .0 | 10 |

## 12121700 TIBBETTS CREEK NEAR ISSAQUAH, WA

LOCATION.--Lat 47°32'30", long 122°03'47", in SW¼NE¼ sec.29, T.24 N., R.6 E., King County, Hydrologic Unit 17110012, on right bank 120 ft(37 m), downstream from old highway bridge, 1.2 mi (1.9 km) upstream from mouth, and 1.5 mi (2.4 km) northwest of Issaquah.

DRAINAGE AREA.--3.90 mi² (10.10 km²).

PERIOD OF RECORD.--August 1963 to September 1968, March 1971 to June 1973, October 1973 to April 1974, Oct. 1974 to September 1976 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 75 ft (23 m), from topographic map. Prior to Mar. 1, 1971, at site 160 ft (49 m) upstream at datum 3.65 ft (1.113 m) higher.

REMARKS.--Records good except those for discharges less than 1.0 ft³/s (0.028 m³/s), which are fair. Several small diversions for domestic use. No regulation.

AVERAGE DISCHARGE.--8 years (water years 1964-68, 1972, 1975-76), 7.63 ft³/s (0.216 m³/s) 26.57 in/yr (675 mm/yr), 5,530 acre-ft/yr (6.82 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.---Maximum discharge, 359 ft³/s (10.2 m³/s) Dec. 2, 1975, gage height, 8.64 ft (2.633 m), from rating curve extended above 160 ft³/s ((4.53 m³/s); minimum discharge, 0.01 ft³/s (<0.001 m³/s) Aug. 25, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 100 ft³/s (2.83 m³/s) and maximum discharge, 359 ft³/s (10.2 m³/s) Dec. 2, gage height, 8.64 ft (2.633 m) from rating curve extended above 160 ft³/s (4.53 m³/s); minimum, 0.20 ft³/s (0.006 m³/s) Oct. 1, 2, 3, gage height, 5.57 ft (1.698 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .20 | 13 | 10 | 14 | 9.3 | 17 | 9.0 | 4.9 | 1.6 | .65 | .30 | .65 |
| 2 | .20 | 10 | 91 | 12 | 8.3 | 14 | 8.6 | 5.6 | 1.5 | .65 | .30 | .70 |
| 3 | .88 | 8.2 | 182 | 11 | 8.0 | 11 | 8.0 | 4.9 | 1.5 | .65 | .35 | .65 |
| 4 | .88 | 7.0 | 104 | 13 | 6.6 | 9.0 | 7.3 | 4.7 | 1.3 | .79 | .35 | .60 |
| 5 | 2.3 | 6.1 | 45 | 13 | 6.1 | 8.3 | 6.6 | 5.6 | 1.3 | .70 | .35 | .97 |
| 6 | 1.9 | 6.2 | 32 | 13 | 5.6 | 7.6 | 5.9 | 4.9 | 1.2 | .60 | .35 | 2.9 |
| 7 | 1.1 | 8.4 | 30 | 15 | 5.2 | 7.3 | 5.4 | 4.2 | 1.2 | .60 | 1.2 | 1.7 |
| 8 | .88 | 11 | 31 | 20 | 4.9 | 6.4 | 5.4 | 3.8 | 1.1 | 2.1 | 1.2 | 1.2 |
| 9 | 1.7 | 9.5 | 28 | 20 | 4.7 | 5.9 | 4.9 | 3.6 | 1.1 | 1.1 | .60 | 1.1 |
| 10 | 1.7 | 8.2 | 25 | 22 | 4.2 | 7.6 | 4.4 | 3.6 | .97 | .88 | .50 | .97 |
| 11 | 1.3 | 7.0 | 20 | 24 | 5.2 | 8.6 | 5.6 | 3.2 | .97 | .70 | .45 | .88 |
| 12 | 1.1 | 6.1 | 17 | 23 | 7.6 | 7.3 | 4.9 | 2.9 | 1.1 | .70 | .40 | .88 |
| 13 | 1.0 | 7.0 | 16 | 20 | 7.6 | 6.6 | 4.7 | 2.7 | 1.2 | .65 | .45 | .79 |
| 14 | 1.0 | 20 | 12 | 34 | 8.6 | 6.4 | 5.4 | 2.6 | .97 | .55 | .55 | 2.0 |
| 15 | 1.4 | 30 | 18 | 39 | 9.7 | 5.9 | 5.9 | 2.4 | 1.6 | .55 | 1.6 | 1.5 |
| 16 | 1.4 | 35 | 18 | 40 | 17 | 5.6 | 5.2 | 2.1 | 2.6 | .50 | 1.6 | 1.2 |
| 17 | 3.7 | 23 | 16 | 27 | 19 | 5.6 | 5.2 | 2.0 | 1.8 | .45 | .97 | 1.2 |
| 18 | 7.2 | 14 | 14 | 21 | 20 | 6.6 | 6.1 | 1.8 | 1.5 | .45 | .70 | 1.1 |
| 19 | 4.2 | 10 | 12 | 17 | 18 | 5.6 | 6.4 | 1.8 | 1.2 | .45 | 1.5 | .97 |
| 20 | 3.3 | 8.2 | 10 | 14 | 18 | 5.6 | 12 | 1.7 | 1.1 | .45 | 2.6 | .88 |
| 21 | 6.1 | 7.0 | 9.0 | 12 | 16 | 5.2 | 9.7 | 1.6 | .97 | .40 | 1.3 | .79 |
| 22 | 7.8 | 6.4 | 9.3 | 12 | 13 | 8.0 | 8.6 | 1.5 | .97 | .40 | 1.1 | .79 |
| 23 | 5.9 | 6.4 | 14 | 10 | 11 | 8.6 | 8.0 | 1.5 | .97 | .40 | .97 | .79 |
| 24 | 4.8 | 6.2 | 20 | 8.6 | 16 | 18 | 11 | 1.7 | .97 | .35 | .88 | .79 |
| 25 | 5.1 | 5.9 | 21 | 8.3 | 21 | 13 | 9.7 | 1.7 | 1.1 | .35 | 1.1 | .70 |
| 26 | 5.1 | 8.2 | 52 | 7.6 | 19 | 13 | 8.6 | 1.6 | .88 | .35 | .88 | .65 |
| 27 | 6.1 | 8.2 | 40 | 24 | 31 | 12 | 7.6 | 1.7 | .79 | .35 | .70 | .65 |
| 28 | 7.8 | 7.4 | 28 | 18 | 28 | 11 | 6.9 | 1.6 | .70 | .30 | .65 | .60 |
| 29 | 40 | 6.6 | 23 | 15 | 22 | 9.0 | 5.9 | 1.8 | .70 | .30 | .60 | .60 |
| 30 | 45 | 9.0 | 20 | 13 | --- | 8.6 | 5.2 | 2.0 | .65 | .30 | .60 | .60 |
| 31 | 25 | --- | 17 | 11 | --- | 11 | --- | 1.8 | --- | .26 | .60 | --- |
| TOTAL | 196.04 | 319.2 | 984.3 | 551.5 | 370.6 | 275.3 | 208.1 | 87.5 | 35.51 | 17.93 | 25.70 | 29.80 |
| MEAN | 6.32 | 10.6 | 31.8 | 17.8 | 12.8 | 8.88 | 6.94 | 2.82 | 1.18 | .58 | .83 | .99 |
| MAX | 45 | 35 | 182 | 40 | 31 | 18 | 12 | 5.6 | 2.6 | 2.1 | 2.6 | 2.9 |
| MIN | .20 | 5.9 | 9.0 | 7.6 | 4.2 | 5.2 | 4.4 | 1.5 | .65 | .26 | .30 | .60 |
| CFSM | 1.62 | 2.72 | 8.15 | 4.56 | 3.28 | 2.28 | 1.78 | .72 | .30 | .15 | .21 | .25 |
| IN. | 1.87 | 3.04 | 9.39 | 5.26 | 3.53 | 2.63 | 1.98 | .83 | .34 | .17 | .25 | .28 |
| AC-FT | 389 | 633 | 1950 | 1090 | 735 | 546 | 413 | 174 | 70 | 36 | 51 | 59 |

CAL YR 1975 TOTAL 3673.52 MEAN 10.1 MAX 182 MIN .16 CFSM 2.59 IN 35.03 AC-FT 7290
WTR YR 1976 TOTAL 3101.48 MEAN 8.47 MAX 182 MIN .20 CFSM 2.17 IN 29.58 AC-FT 6150

## 12121800 PINE LAKE NEAR ISSAQUAH, WA

LOCATION.--Lat 47°35'17", long 122°02'24", in NW¼NE¼ sec.9, T.24 N., R.6 E., King County, Hydrologic Unit 17110012, in the county park on northeast shore 3.8 mi (6.1 km) north of Issaquah.

DRAINAGE AREA.--1.06 mi² (2.75 km²).

PERIOD OF RECORD.--May 1956 to March 1975 (fragmentary), April 1975 to current year, chemical analyses February 1975 to September 1975.

GAGE.--Nonrecording gage. Altitude of gage is 390 ft (119 m), from topographic map. Prior to Sept. 11, 1966, at site on north shore 0.6 mi (1.0 km) across lake at same datum. Sept. 11, 1966 to Mar. 20, 1975 at site 0.2 mi (0.3 km) northeast at same datum.

REMARKS.--Records good. Some pumpage from lake for domestic use.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 5.03 ft (1.533 m) Mar. 6, 1972; minimum observed, 1.14 ft (0.347 m) Oct. 7, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 4.97 ft (1.515 m) Dec. 4; minimum observed, 2.55 ft (0.777 m) Oct. 1.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.55 | 3.63 | 4.05 | 4.15 | 4.01 | 4.11 | 4.03 | 3.71 | 3.47 | 3.21 | 2.81 | 2.81 |
| 2 | 2.57 | 3.73 | 4.11 | 4.11 | 4.01 | 4.07 | 4.03 | 3.71 | 3.45 | 3.21 | 2.81 | 2.79 |
| 3 | 2.59 | 3.73 | 4.59 | 4.19 | 3.99 | 4.03 | 3.99 | 3.69 | 3.43 | 3.19 | 2.79 | 2.79 |
| 4 | 2.61 | 3.77 | 4.97 | 4.11 | 3.99 | 4.03 | 3.97 | 3.69 | 3.41 | 3.19 | 2.77 | 2.81 |
| 5 | 2.63 | 3.79 | 4.93 | 4.03 | 3.99 | 4.03 | 3.95 | 3.69 | 3.41 | 3.19 | 2.73 | 2.83 |
| 6 | 2.63 | 3.83 | 4.61 | 4.03 | 3.97 | 4.01 | 3.93 | 3.69 | 3.41 | 3.19 | 2.73 | 2.83 |
| 7 | 2.63 | 3.83 | 4.61 | 4.03 | 3.87 | 4.01 | 3.91 | 3.69 | 3.41 | 3.17 | 2.78 | 2.81 |
| 8 | 2.61 | 3.83 | 4.59 | 4.13 | 3.83 | 3.99 | 3.91 | 3.69 | 3.47 | 3.17 | 2.83 | 2.81 |
| 9 | 2.61 | 3.87 | 4.51 | 4.15 | 3.83 | 3.95 | 3.91 | 3.67 | 3.47 | 3.17 | 2.83 | 2.81 |
| 10 | 2.61 | 3.93 | 4.43 | 4.21 | 3.85 | 3.97 | 3.91 | 3.65 | 3.35 | 3.15 | 2.83 | 2.79 |
| 11 | 2.61 | 3.97 | 4.29 | 4.23 | 3.87 | 3.91 | 3.85 | 3.65 | 3.33 | 3.15 | 2.83 | 2.79 |
| 12 | 2.61 | 4.01 | 4.23 | 4.21 | 3.89 | 3.87 | 3.85 | 3.63 | 3.33 | 3.13 | 2.83 | 2.79 |
| 13 | 2.61 | 4.03 | 4.19 | 4.23 | 3.89 | 3.83 | 3.83 | 3.63 | 3.33 | 3.13 | 2.83 | 2.79 |
| 14 | 2.63 | 4.23 | 4.15 | 4.23 | 3.91 | 3.81 | 3.83 | 3.63 | 3.33 | 3.13 | 2.83 | 2.79 |
| 15 | 2.65 | 4.43 | 4.11 | 4.31 | 3.93 | 3.81 | 3.81 | 3.61 | 3.33 | 3.11 | 2.83 | 2.79 |
| 16 | 2.67 | 4.51 | 4.07 | 4.27 | 3.97 | 3.81 | 3.81 | 3.57 | 3.33 | 3.09 | 2.83 | 2.77 |
| 17 | 2.71 | 4.53 | 4.03 | 4.23 | 4.01 | 3.81 | 3.77 | 3.55 | 3.33 | 3.09 | 2.83 | 2.77 |
| 18 | 2.73 | 4.47 | 3.91 | 4.21 | 4.03 | 3.81 | 3.79 | 3.53 | 3.31 | 3.05 | 2.83 | 2.75 |
| 19 | 2.75 | 4.35 | 3.91 | 4.21 | 4.03 | 3.81 | 3.79 | 3.53 | 3.31 | 3.03 | 2.83 | 2.73 |
| 20 | 2.77 | 4.23 | 3.91 | 4.13 | 4.09 | 3.81 | 3.77 | 3.51 | 3.31 | 3.03 | 2.89 | 2.73 |
| 21 | 2.77 | 4.19 | 3.91 | 4.11 | 4.13 | 3.81 | 3.75 | 3.51 | 3.31 | 3.01 | 2.87 | 2.73 |
| 22 | 2.83 | 4.15 | 3.91 | 4.11 | 4.09 | 3.81 | 3.73 | 3.51 | 3.27 | 2.99 | 2.85 | 2.71 |
| 23 | 2.89 | 4.11 | 3.91 | 4.07 | 4.05 | 3.83 | 3.73 | 3.51 | 3.25 | 2.97 | 2.85 | 2.71 |
| 24 | 2.93 | 4.07 | 3.93 | 4.05 | 4.03 | 3.89 | 3.73 | 3.49 | 3.25 | 2.95 | 2.85 | 2.69 |
| 25 | 2.93 | 4.03 | 4.03 | 4.03 | 4.07 | 3.97 | 3.73 | 3.49 | 3.25 | 2.95 | 2.85 | 2.69 |
| 26 | 2.93 | 4.05 | 4.23 | 3.99 | 4.09 | 4.01 | 3.73 | 3.47 | 3.25 | 2.91 | 2.85 | 2.67 |
| 27 | 2.99 | 4.05 | 4.33 | 4.05 | 4.11 | 4.01 | 3.73 | 3.45 | 3.23 | 2.99 | 2.83 | 2.67 |
| 28 | 3.17 | 4.07 | 4.27 | 4.03 | 4.11 | 4.01 | 3.73 | 3.45 | 3.23 | 2.99 | 2.83 | 2.65 |
| 29 | 3.23 | 4.03 | 4.23 | 4.03 | 4.13 | 4.01 | 3.71 | 3.47 | 3.23 | 2.85 | 2.83 | 2.65 |
| 30 | 3.43 | 4.03 | 4.23 | 4.01 | --- | 4.01 | 3.71 | 3.47 | 3.21 | 2.83 | 2.81 | 2.65 |
| 31 | 3.63 | --- | 4.23 | 4.01 | --- | 4.03 | --- | 3.47 | --- | 2.83 | 2.81 | --- |
| MEAN | 2.79 | 4.05 | 4.24 | 4.13 | 3.99 | 3.93 | 3.83 | 3.58 | 3.33 | 3.07 | 2.82 | 2.75 |
| MAX | 3.63 | 4.53 | 4.97 | 4.31 | 4.13 | 4.11 | 4.03 | 3.71 | 3.47 | 3.21 | 2.89 | 2.83 |
| MIN | 2.55 | 3.63 | 3.91 | 3.99 | 3.83 | 3.81 | 3.71 | 3.45 | 3.21 | 2.83 | 2.73 | 2.65 |

WTR YR 1976 MEAN 3.54 MAX 4.97 MIN 2.55

## 12122000 SAMMAMISH LAKE NEAR REDMOND, WA

LOCATION.--Lat 47°34'47", long 122°06'38", in NE¼SW¼ sec.12, T.24 N., R.5 E., King County, Hydrologic Unit 17110012, on west shore 5.6 mi (9.0 km) uplake from outlet and 6.5 mi (10.5 km) south of Redmond.

DRAINAGE AREA.--97.7 mi² (253.0 km²).

PERIOD OF RECORD.--January 1939 to current year.

REVISED RECORDS.--WSP 1446: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 24.04 ft (7.327 m) above mean sea level. Prior to June 22, 1942, nonrecording gage 4.6 mi (7.4 km) downlake at datum 1.00 ft (0.305 m) higher. June 22, 1942, to Aug. 22, 1951, nonrecording gage 4.5 mi (7.2 km) downlake at datum 1.00 ft (0.305 m) higher and Aug. 23, 1951, to Apr. 29, 1965, at present datum.

REMARKS.--Records good. Many small diversions from tributaries for irrigation and domestic use. Slight regulation on tributaries.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 9.40 ft (2.865 m) Feb. 12, 1951 (present datum); minimum observed, 1.09 ft (0.332 m) Aug. 25-27, 1951.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 10.83 ft (3.301 m), present datum, was observed on Dec. 22, 1933, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.66 ft (1.725 m) Dec. 5, minimum, 1.76 ft (0.535 m) Oct. 2, 3.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.81 | 3.45 | 3.46 | 3.58 | 3.03 | 3.19 | 2.82 | 2.46 | 2.04 | 1.90 | 1.84 | 1.99 |
| 2 | 1.80 | 3.46 | 3.80 | 3.44 | 2.97 | 3.14 | 2.79 | 2.48 | 2.03 | 1.89 | 1.83 | 1.98 |
| 3 | 1.82 | 3.43 | 4.75 | 3.38 | 2.91 | 3.08 | 2.75 | 2.47 | 2.02 | 1.89 | 1.83 | 1.97 |
| 4 | 1.83 | 3.38 | 5.48 | 3.35 | 2.84 | 3.02 | 2.72 | 2.44 | 2.01 | 1.90 | 1.83 | 1.95 |
| 5 | 1.85 | 3.31 | 5.64 | 3.35 | 2.78 | 2.97 | 2.68 | 2.45 | 2.00 | 1.90 | 1.83 | 1.94 |
| 6 | 1.91 | 3.27 | 5.51 | 3.32 | 2.72 | 2.91 | 2.65 | 2.45 | 1.99 | 1.89 | 1.83 | 2.01 |
| 7 | 1.90 | 3.30 | 5.36 | 3.28 | 2.67 | 2.86 | 2.62 | 2.43 | 1.98 | 1.89 | 1.88 | 2.02 |
| 8 | 1.89 | 3.31 | 5.25 | 3.31 | 2.62 | 2.81 | 2.61 | 2.40 | 1.96 | 1.96 | 1.99 | 2.01 |
| 9 | 1.90 | 3.32 | 5.09 | 3.32 | 2.58 | 2.76 | 2.59 | 2.38 | 1.96 | 1.97 | 2.00 | 2.00 |
| 10 | 1.92 | 3.27 | 4.91 | 3.35 | 2.53 | 2.73 | 2.55 | 2.34 | 1.94 | 1.96 | 2.00 | 1.99 |
| 11 | 1.91 | 3.21 | 4.72 | 3.43 | 2.51 | 2.74 | 2.54 | 2.32 | 1.93 | 1.97 | 1.99 | 1.97 |
| 12 | 1.90 | 3.15 | 4.54 | 3.46 | 2.55 | 2.71 | 2.53 | 2.30 | 1.94 | 1.96 | 1.98 | 1.96 |
| 13 | 1.89 | 3.11 | 4.39 | 3.43 | 2.57 | 2.68 | 2.51 | 2.27 | 1.95 | 1.95 | 1.96 | 1.95 |
| 14 | 1.88 | 3.25 | 4.24 | 3.53 | 2.60 | 2.65 | 2.49 | 2.25 | 1.94 | 1.94 | 1.97 | 1.98 |
| 15 | 1.89 | 3.42 | 4.14 | 3.74 | 2.63 | 2.62 | 2.50 | 2.23 | 1.95 | 1.93 | 1.99 | 2.00 |
| 16 | 1.89 | 3.59 | 4.08 | 3.92 | 2.70 | 2.59 | 2.49 | 2.19 | 2.00 | 1.92 | 2.03 | 1.99 |
| 17 | 1.97 | 3.66 | 3.98 | 3.95 | 2.80 | 2.57 | 2.46 | 2.16 | 2.03 | 1.92 | 2.03 | 1.98 |
| 18 | 2.11 | 3.65 | 3.89 | 3.91 | 2.89 | 2.60 | 2.47 | 2.14 | 2.03 | 1.91 | 2.02 | 1.97 |
| 19 | 2.14 | 3.60 | 3.79 | 3.81 | 2.95 | 2.59 | 2.46 | 2.12 | 2.02 | 1.90 | 2.02 | 1.97 |
| 20 | 2.14 | 3.53 | 3.69 | 3.69 | 3.01 | 2.58 | 2.53 | 2.09 | 2.00 | 1.88 | 2.08 | 1.96 |
| 21 | 2.19 | 3.45 | 3.60 | 3.58 | 3.00 | 2.56 | 2.56 | 2.08 | 1.99 | 1.88 | 2.08 | 1.95 |
| 22 | 2.31 | 3.38 | 3.54 | 3.50 | 2.98 | 2.60 | 2.56 | 2.06 | 1.97 | 1.89 | 2.08 | 1.94 |
| 23 | 2.34 | 3.35 | 3.52 | 3.42 | 2.94 | 2.61 | 2.55 | 2.05 | 1.95 | 1.89 | 2.07 | 1.95 |
| 24 | 2.34 | 3.31 | 3.53 | 3.32 | 2.96 | 2.72 | 2.59 | 2.05 | 1.94 | 1.89 | 2.06 | 1.95 |
| 25 | 2.35 | 3.27 | 3.52 | 3.23 | 3.03 | 2.80 | 2.62 | 2.05 | 1.98 | 1.88 | 2.08 | 1.94 |
| 26 | 2.36 | 3.31 | 3.71 | 3.15 | 3.04 | 2.82 | 2.61 | 2.04 | 1.97 | 1.88 | 2.08 | 1.93 |
| 27 | 2.41 | 3.37 | 3.85 | 3.23 | 3.09 | 2.84 | 2.59 | 2.04 | 1.95 | 1.87 | 2.06 | 1.92 |
| 28 | 2.45 | 3.35 | 3.86 | 3.25 | 3.20 | 2.84 | 2.56 | 2.04 | 1.95 | 1.86 | 2.05 | 1.91 |
| 29 | 2.71 | 3.31 | 3.83 | 3.21 | 3.21 | 2.82 | 2.53 | 2.04 | 1.93 | 1.85 | 2.04 | 1.91 |
| 30 | 3.11 | 3.34 | 3.76 | 3.16 | --- | 2.80 | 2.50 | 2.05 | 1.92 | 1.85 | 2.02 | 1.90 |
| 31 | 3.37 | --- | 3.68 | 3.10 | --- | 2.83 | --- | 2.05 | --- | 1.84 | 2.01 | --- |
| MEAN | 2.14 | 3.37 | 4.23 | 3.44 | 2.84 | 2.78 | 2.58 | 2.22 | 1.98 | 1.90 | 1.99 | 1.96 |
| MAX | 3.37 | 3.66 | 5.64 | 3.95 | 3.21 | 3.19 | 2.82 | 2.48 | 2.04 | 1.97 | 2.08 | 2.02 |
| MIN | 1.80 | 3.11 | 3.46 | 3.10 | 2.51 | 2.56 | 2.46 | 2.04 | 1.92 | 1.84 | 1.83 | 1.90 |

CAL YR 1975 MEAN 2.68 MAX 5.64 MIN 1.72
WTR YR 1976 MEAN 2.62 MAX 5.64 MIN 1.80

## 12122010 SAMMAMISH RIVER ABOVE BEAR CREEK NEAR REDMOND, WA

LOCATION.--Lat 47°39'28", long 122°06'53", in NE¼NW¼ sec.13, T.25 N., R.5 E., King County, Hydrologic Unit 17110012, on right bank 2,500 ft (760 m) upstream from bridge leading to county park, 3,000 ft (910 m) downstream from outlet of Sammamish Lake, 1.5 mi (2.4 km) south of Redmond and at mile 14.6 (23.5 km).

DRAINAGE AREA.--99.8 mi² (258.5 km²).

PERIOD OF RECORD.--October 1975 to September 1976.

GAGE.--Water-stage recorder. Datum of gage is 23.11 ft (7.044 m) above mean sea level based on King County datum.

REMARKS.--Records good except those during period of doubtful gage-height record Feb. 13 to Mar. 17 and July 15 to Aug. 18, which are fair. Natural regulation from Sammamish Lake and some minor regulation on upstream tributaries. Many small diversions for irrigation and domestic use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,280 ft³/s (36.2 m³/s) Dec. 5, gage height, 5.79 ft (1.765 m); minimum daily discharge, 45 ft³/s (1.27 m³/s) Aug. 5, 6; minimum gage height, 2.63 ft (0.802 m) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 64 | 440 | 413 | 572 | 406 | 460 | 332 | 228 | 116 | 70 | 51 | 86 |
| 2 | 62 | 452 | 516 | 540 | 388 | 440 | 322 | 228 | 112 | 66 | 49 | 84 |
| 3 | 66 | 440 | 860 | 512 | 371 | 430 | 309 | 228 | 108 | 62 | 48 | 82 |
| 4 | 68 | 420 | 1190 | 512 | 350 | 410 | 300 | 222 | 104 | 64 | 46 | 80 |
| 5 | 72 | 406 | 1260 | 508 | 336 | 390 | 291 | 222 | 98 | 64 | 45 | 78 |
| 6 | 78 | 395 | 1160 | 496 | 315 | 380 | 285 | 219 | 98 | 64 | 45 | 90 |
| 7 | 78 | 406 | 1080 | 488 | 300 | 360 | 273 | 216 | 96 | 62 | 63 | 90 |
| 8 | 76 | 413 | 1040 | 500 | 288 | 350 | 270 | 207 | 96 | 74 | 86 | 88 |
| 9 | 80 | 409 | 980 | 504 | 276 | 330 | 264 | 204 | 92 | 76 | 87 | 86 |
| 10 | 80 | 399 | 910 | 516 | 267 | 320 | 258 | 198 | 92 | 74 | 88 | 86 |
| 11 | 80 | 385 | 835 | 544 | 258 | 320 | 255 | 192 | 90 | 72 | 85 | 84 |
| 12 | 78 | 364 | 765 | 552 | 270 | 315 | 249 | 180 | 90 | 70 | 83 | 82 |
| 13 | 76 | 350 | 710 | 544 | 280 | 310 | 243 | 175 | 92 | 68 | 76 | 80 |
| 14 | 76 | 399 | 652 | 584 | 290 | 305 | 240 | 167 | 88 | 72 | 78 | 84 |
| 15 | 76 | 448 | 620 | 661 | 300 | 295 | 243 | 162 | 92 | 70 | 85 | 86 |
| 16 | 76 | 500 | 598 | 728 | 320 | 285 | 237 | 157 | 100 | 67 | 92 | 86 |
| 17 | 90 | 524 | 568 | 737 | 350 | 285 | 231 | 152 | 102 | 67 | 94 | 84 |
| 18 | 114 | 516 | 536 | 719 | 370 | 300 | 234 | 142 | 100 | 64 | 90 | 82 |
| 19 | 118 | 496 | 504 | 683 | 390 | 279 | 231 | 137 | 92 | 62 | 88 | 80 |
| 20 | 116 | 476 | 472 | 638 | 410 | 273 | 252 | 135 | 90 | 59 | 98 | 78 |
| 21 | 125 | 452 | 444 | 593 | 400 | 267 | 258 | 127 | 86 | 59 | 98 | 78 |
| 22 | 147 | 436 | 424 | 564 | 400 | 282 | 261 | 122 | 86 | 60 | 98 | 78 |
| 23 | 155 | 424 | 424 | 540 | 390 | 285 | 258 | 118 | 82 | 60 | 96 | 78 |
| 24 | 155 | 409 | 448 | 504 | 390 | 322 | 270 | 116 | 76 | 60 | 96 | 76 |
| 25 | 157 | 399 | 456 | 468 | 420 | 336 | 276 | 118 | 82 | 59 | 102 | 74 |
| 26 | 162 | 403 | 548 | 440 | 420 | 343 | 270 | 116 | 80 | 59 | 100 | 74 |
| 27 | 170 | 406 | 616 | 476 | 450 | 346 | 267 | 116 | 78 | 56 | 98 | 74 |
| 28 | 177 | 399 | 625 | 476 | 460 | 339 | 261 | 116 | 76 | 55 | 94 | 72 |
| 29 | 243 | 388 | 625 | 464 | 470 | 332 | 255 | 114 | 72 | 54 | 92 | 70 |
| 30 | 343 | 385 | 625 | 444 | --- | 322 | 243 | 116 | 72 | 52 | 92 | 66 |
| 31 | 424 | --- | 602 | 424 | --- | 336 | --- | 116 | --- | 52 | 90 | --- |
| TOTAL | 3882 | 12739 | 21506 | 16931 | 10335 | 10347 | 7938 | 5066 | 2738 | 1973 | 2533 | 2416 |
| MEAN | 125 | 425 | 694 | 546 | 356 | 334 | 265 | 163 | 91.3 | 63.6 | 81.7 | 80.5 |
| MAX | 424 | 524 | 1260 | 737 | 470 | 460 | 332 | 228 | 116 | 76 | 102 | 90 |
| MIN | 62 | 350 | 413 | 424 | 258 | 267 | 231 | 114 | 72 | 52 | 45 | 66 |
| CFSM | 1.25 | 4.26 | 6.95 | 5.47 | 3.57 | 3.35 | 2.66 | 1.63 | .91 | .64 | .82 | .81 |
| IN. | 1.45 | 4.75 | 8.02 | 6.31 | 3.85 | 3.86 | 2.96 | 1.89 | 1.02 | .74 | .94 | .90 |
| AC-FT | 7700 | 25270 | 42660 | 33580 | 20500 | 20520 | 15750 | 10050 | 5430 | 3910 | 5020 | 4790 |

WTR YR 1976 TOTAL 98404 MEAN 269 MAX 1260 MIN 45 CFSM 2.70 IN 36.68 AC-FT 195200

## 12124000 EVANS CREEK ABOVE MOUTH, NEAR REDMOND, WA

LOCATION.--Lat 47°40'31", long 122°04'48", on north line NE¼NE¼ sec.7, T.25 N., R.6 E., King County, Hydrologic Unit 17110012, on right bank 25 ft (8 m) upstream from county bridge, 2.0 mi (3.2 km) east of Redmond, and at mile 0.8 (1.3 km).

DRAINAGE AREA.--13.0 $mi^2$ (33.7 $km^2$).

PERIOD OF RECORD.--June 1955 to June 1973, October 1973 to April 1974, October 1974 to September 1976 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 50 ft (15 m), from topographic map.

REMARKS.--Records fair except those during period of unstable stage-discharge relation July 24, to Aug. 8, which are poor. Several small diversions above station for irrigation and domestic use. No regulation.

AVERAGE DISCHARGE.--19 years (water years, 1956-72, 1975-76), 23.1 $ft^3/s$ (0.654 $m^3/s$), 24.13 in/yr (612.9 mm/yr), 16,740 acre-ft/yr (20.6 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 222 $ft^3/s$ (6.29 $m^3/s$) Dec. 5, 1975, gage height, 3.96 ft (1.207 m); minimum, 3.9 $ft^3/s$ (0.11 $m^3/s$) Aug. 23, 24, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 222 $ft^3/s$ (6.29 $m^3/s$) Dec. 5, gage height, 3.96 ft (1.207 m); minimum daily, 7.0 $ft^3/s$ (0.20 $m^3/s$) Aug. 2, 3; minimum gage height, 1.86 ft (0.567 m) Sept. 3.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.6 | 26 | 54 | 40 | 31 | 54 | 33 | 21 | 13 | 9.0 | 7.1 | 8.6 |
| 2 | 9.0 | 24 | 76 | 35 | 28 | 44 | 29 | 26 | 12 | 8.6 | 7.0 | 8.6 |
| 3 | 11 | 19 | 136 | 33 | 27 | 38 | 26 | 24 | 11 | 9.0 | 7.0 | 8.6 |
| 4 | 13 | 17 | 201 | 43 | 25 | 33 | 24 | 21 | 11 | 10 | 7.9 | 8.6 |
| 5 | 16 | 14 | 212 | 48 | 23 | 29 | 23 | 34 | 11 | 9.0 | 7.6 | 9.8 |
| 6 | 16 | 19 | 160 | 40 | 21 | 27 | 22 | 26 | 11 | 8.6 | 8.2 | 17 |
| 7 | 11 | 49 | 119 | 40 | 20 | 26 | 20 | 22 | 10 | 8.6 | 15 | 12 |
| 8 | 10 | 40 | 110 | 45 | 20 | 24 | 23 | 20 | 9.4 | 18 | 20 | 11 |
| 9 | 12 | 38 | 96 | 43 | 20 | 23 | 22 | 18 | 9.4 | 12 | 13 | 9.8 |
| 10 | 13 | 27 | 78 | 43 | 19 | 23 | 20 | 17 | 9.0 | 10 | 11 | 9.4 |
| 11 | 11 | 19 | 57 | 58 | 20 | 27 | 22 | 17 | 9.4 | 9.8 | 11 | 9.0 |
| 12 | 10 | 17 | 45 | 51 | 28 | 23 | 20 | 15 | 11 | 9.4 | 8.6 | 9.0 |
| 13 | 9.4 | 20 | 43 | 41 | 26 | 30 | 19 | 15 | 13 | 9.4 | 8.6 | 9.0 |
| 14 | 9.4 | 88 | 37 | 54 | 25 | 24 | 20 | 15 | 11 | 8.9 | 9.0 | 14 |
| 15 | 11 | 109 | 47 | 59 | 24 | 22 | 23 | 14 | 12 | 8.4 | 12 | 13 |
| 16 | 12 | 127 | 50 | 55 | 30 | 21 | 22 | 13 | 15 | 7.9 | 15 | 11 |
| 17 | 24 | 128 | 40 | 48 | 33 | 20 | 21 | 13 | 13 | 8.4 | 11 | 9.8 |
| 18 | 39 | 107 | 34 | 48 | 32 | 28 | 24 | 12 | 12 | 8.0 | 9.4 | 9.4 |
| 19 | 19 | 78 | 31 | 40 | 28 | 24 | 23 | 12 | 10 | 7.4 | 13 | 9.4 |
| 20 | 13 | 60 | 27 | 34 | 34 | 23 | 49 | 12 | 9.4 | 8.4 | 28 | 8.6 |
| 21 | 17 | 46 | 25 | 31 | 29 | 21 | 48 | 11 | 9.4 | 9.1 | 14 | 8.2 |
| 22 | 26 | 43 | 28 | 39 | 26 | 31 | 41 | 11 | 9.8 | 8.6 | 11 | 9.0 |
| 23 | 17 | 46 | 40 | 44 | 24 | 28 | 36 | 11 | 9.0 | 8.3 | 9.8 | 11 |
| 24 | 13 | 47 | 54 | 36 | 31 | 52 | 45 | 13 | 9.4 | 8.0 | 9.8 | 9.8 |
| 25 | 14 | 46 | 46 | 31 | 46 | 44 | 46 | 13 | 18 | 7.8 | 17 | 9.0 |
| 26 | 14 | 61 | 91 | 29 | 43 | 40 | 38 | 13 | 12 | 7.6 | 13 | 8.6 |
| 27 | 15 | 66 | 120 | 71 | 52 | 39 | 33 | 14 | 9.8 | 7.4 | 11 | 8.6 |
| 28 | 18 | 52 | 97 | 58 | 84 | 37 | 29 | 12 | 9.4 | 7.3 | 9.8 | 8.6 |
| 29 | 54 | 42 | 74 | 45 | 72 | 34 | 25 | 13 | 9.4 | 7.2 | 9.4 | 8.2 |
| 30 | 71 | 46 | 68 | 38 | --- | 31 | 22 | 14 | 9.0 | 7.2 | 9.4 | 8.2 |
| 31 | 45 | --- | 51 | 35 | --- | 39 | --- | 13 | --- | 7.1 | 9.0 | --- |
| TOTAL | 581.4 | 1521 | 2347 | 1355 | 921 | 959 | 848 | 505 | 327.8 | 274.4 | 352.6 | 294.8 |
| MEAN | 18.8 | 50.7 | 75.7 | 43.7 | 31.8 | 30.9 | 28.3 | 16.3 | 10.9 | 8.85 | 11.4 | 9.83 |
| MAX | 71 | 128 | 212 | 71 | 84 | 54 | 49 | 34 | 18 | 18 | 28 | 17 |
| MIN | 8.6 | 14 | 25 | 29 | 19 | 20 | 19 | 11 | 9.0 | 7.1 | 7.0 | 8.2 |
| CFSM | 1.45 | 3.90 | 5.82 | 3.36 | 2.45 | 2.38 | 2.18 | 1.25 | .84 | .68 | .88 | .76 |
| IN. | 1.66 | 4.35 | 6.72 | 3.88 | 2.64 | 2.74 | 2.43 | 1.44 | .94 | .79 | 1.01 | .84 |
| AC-FT | 1150 | 3020 | 4660 | 2690 | 1830 | 1900 | 1680 | 1000 | 650 | 544 | 699 | 585 |

CAL YR 1975 TOTAL 11338.2 MEAN 31.1 MAX 212 MIN 7.1 CFSM 2.39 IN 32.44 AC-FT 22490
WTR YR 1976 TOTAL 10287.0 MEAN 28.1 MAX 212 MIN 7.0 CFSM 2.16 IN 29.43 AC-FT 20400

## 12124998 SAMMAMISH RIVER AT REDMOND, WA

LOCATION.--Lat 47°40'15", long 122°07'35", in SW¼NE¼ sec.11, T.25 N., R.5 E., King County, Hydrologic Unit 17110012, at golf course bridge 0.2 mi (0.3 km) west of Redmond city limits and 0.4 mi (0.6 km) upstream from former gaging station "near Redmond."

DRAINAGE AREA.--148 mi² (383 km²).

PERIOD OF RECORD.--October 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 16... | 1045 | 76 | 120 | 7.5 | 12.9 | 42 | 3 |
| 22... | 1200 | 150 | 111 | 7.3 | 11.6 | 71 | 5 |
| NOV | | | | | | | |
| 05... | 1010 | 406 | 104 | 7.5 | 11.9 | 33 | 4 |
| 19... | 1110 | 500 | 100 | 7.2 | 7.5 | 29 | 4 |
| DEC | | | | | | | |
| 03... | 0945 | 830 | 96 | 7.3 | 9.3 | 67 | 10 |
| 17... | 0945 | 572 | 102 | 6.9 | 6.5 | 38 | 5 |
| JAN | | | | | | | |
| 14... | 1105 | 594 | 91 | 7.5 | 7.2 | 33 | 11 |
| 28... | 1120 | 484 | 103 | 7.1 | 8.1 | 75 | 8 |
| FEB | | | | | | | |
| 04... | 1035 | 354 | 103 | 7.5 | 5.5 | 25 | 4 |
| 19... | 1045 | *390 | 93 | 7.2 | 6.0 | 46 | 6 |
| MAR | | | | | | | |
| 03... | 1100 | *430 | 91 | 7.3 | 4.9 | 46 | 8 |
| 18... | 1105 | *300 | 99 | 7.6 | 7.8 | 42 | 6 |
| APR | | | | | | | |
| 07... | 1215 | 288 | 88 | 7.1 | 9.4 | 25 | 5 |
| 21... | 1120 | 258 | 86 | 7.6 | 10.3 | 60 | 9 |
| MAY | | | | | | | |
| 05... | 1100 | 225 | 94 | 7.8 | 12.3 | 38 | 4 |
| 19... | 1215 | 138 | 95 | 7.4 | 14.7 | 25 | 4 |
| JUN | | | | | | | |
| 03... | 1140 | 110 | 98 | 7.8 | 14.4 | 27 | 4 |
| 16... | 1140 | 108 | 102 | 7.2 | 15.0 | 55 | 9 |
| JUL | | | | | | | |
| 08... | 1100 | 76 | 100 | 8.1 | 19.4 | 85 | 15 |
| 21... | 1110 | 57 | 110 | 8.1 | 18.0 | 42 | 5 |
| AUG | | | | | | | |
| 04... | 1035 | 46 | 110 | 7.5 | 17.7 | 38 | 4 |
| 18... | 1023 | *90 | 100 | 7.9 | 17.4 | 29 | 3 |
| SEP | | | | | | | |
| 09... | 1000 | 82 | 101 | 8.2 | 16.6 | 29 | 3 |
| 29... | 1020 | 64 | 107 | 7.8 | 17.2 | -- | 6 |

| DATE | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 16... | 9.9 | B400 | 200 | .22 | .16 | .04 | .01 |
| 22... | 10.1 | B5000 | B210 | .28 | .12 | .05 | .01 |
| NOV | | | | | | | |
| 05... | 9.6 | B1000 | B160 | .83 | .08 | .03 | .00 |
| 19... | 10.2 | B200 | B28 | .35 | .05 | .02 | .00 |
| DEC | | | | | | | |
| 03... | 9.9 | 2400 | B150 | .59 | .47 | .05 | .01 |
| 17... | 10.6 | B450 | B90 | .47 | .09 | .03 | .01 |
| JAN | | | | | | | |
| 14... | 11.5 | >1400 | 120 | .50 | .14 | .05 | .01 |
| 28... | 11.3 | 780 | 78 | .69 | .10 | .05 | .01 |
| FEB | | | | | | | |
| 04... | 12.3 | B90 | B14 | .47 | .13 | .04 | .01 |
| 19... | 12.4 | 210 | B16 | .51 | .09 | .03 | .01 |
| MAR | | | | | | | |
| 03... | 13.0 | 210 | 58 | .57 | .05 | .02 | .00 |
| 18... | 12.4 | 1700 | 510 | .50 | .09 | .04 | .01 |
| APR | | | | | | | |
| 07... | 13.5 | 560 | 200 | .43 | .10 | .03 | .00 |
| 21... | 12.8 | B1000 | 460 | .47 | .16 | .04 | .01 |
| MAY | | | | | | | |
| 05... | 12.1 | B2800 | 1300 | .35 | .15 | .03 | .01 |
| 19... | 12.3 | B400 | <20 | .30 | .03 | .02 | .00 |
| JUN | | | | | | | |
| 03... | 12.2 | B620 | 280 | .24 | .12 | .03 | .00 |
| 16... | 10.4 | 710 | 220 | .25 | .09 | .05 | .00 |
| JUL | | | | | | | |
| 08... | 10.3 | 4600 | 1200 | .21 | .17 | .07 | .01 |
| 21... | 10.5 | B1100 | B250 | .11 | .11 | .04 | .01 |
| AUG | | | | | | | |
| 04... | 8.8 | 1100 | B340 | .08 | .11 | .04 | .01 |
| 18... | 9.0 | B450 | B76 | .10 | .08 | .06 | .00 |
| SEP | | | | | | | |
| 09... | 10.2 | B1100 | B120 | .62 | .07 | .03 | .00 |
| 29... | 9.5 | B480 | 76 | .10 | .06 | .04 | .01 |

B Results based upon colony counts outside the ideal range.

## 12125200 SAMMAMISH RIVER NEAR WOODINVILLE, WA

LOCATION.--Lat 47°42'15", long 122°08'29", in SW¼SW¼ sec.26, T.26 N., R.5 E., King County, Hydrologic Unit 17110012, on right bank 3.9 mi (6.3 km) upstream from Bear Creek, 3.6 mi (5.8 km) southeast of Woodinville, and at mile 10.8 (17.4 km).

DRAINAGE AREA.--157 mi$^2$ (407 km$^2$).

PERIOD OF RECORD.--January 1965 to current year, water temperatures August 1965 to February 1967.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Corps of Engineers bench mark). Prior to July 7, 1970, auxiliary water-stage recorder 2 mi (3.2 km) downstream from base gage at same datum.

REMARKS.--Records good. Natural regulation from Sammamish Lake and some minor regulation on upstream tributaries. Many small diversions for irrigation and domestic use.

AVERAGE DISCHARGE.--11 years, 347 ft$^3$/s (9.827 m$^3$/s), 30.01 in/yr (762 mm/yr), 251,400 acre-ft/yr (310 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,390 ft$^3$/s (67.7 m$^3$/s) Mar. 6, 1972, elevation, 25.83 ft (7.873 m); minimum daily, 40 ft$^3$/s (1.13 m$^3$/s) Aug. 17, 1966, Aug. 21, Sept. 9, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,070 ft$^3$/s (58.6 m$^3$/s) Dec. 4, elevation, 24.63 ft (7.507 m); minimum daily, 69 ft$^3$/s (1.95 m$^3$/s) Aug. 3. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 75 | 554 | 668 | 783 | 566 | 755 | 490 | 315 | 183 | 118 | 71 | 122 |
| 2 | 79 | 550 | 821 | 717 | 536 | 676 | 460 | 343 | 181 | 110 | 70 | 120 |
| 3 | 86 | 536 | 1430 | 676 | 506 | 620 | 434 | 338 | 174 | 102 | 69 | 113 |
| 4 | 96 | 520 | 2000 | 706 | 476 | 566 | 412 | 317 | 166 | 108 | 69 | 111 |
| 5 | 117 | 498 | 1970 | 698 | 440 | 514 | 394 | 330 | 157 | 104 | 75 | 119 |
| 6 | 130 | 514 | 1790 | 666 | 412 | 468 | 384 | 317 | 150 | 108 | 79 | 135 |
| 7 | 107 | 628 | 1680 | 658 | 390 | 442 | 367 | 301 | 147 | 111 | 106 | 128 |
| 8 | 96 | 624 | 1620 | 680 | 371 | 408 | 374 | 284 | 145 | 140 | 161 | 122 |
| 9 | 105 | 638 | 1490 | 670 | 356 | 382 | 367 | 271 | 143 | 135 | 127 | 118 |
| 10 | 118 | 592 | 1350 | 684 | 336 | 374 | 350 | 266 | 139 | 129 | 113 | 116 |
| 11 | 105 | 558 | 1210 | 766 | 334 | 400 | 352 | 268 | 136 | 123 | 112 | 114 |
| 12 | 95 | 534 | 1090 | 757 | 380 | 371 | 341 | 253 | 142 | 121 | 110 | 112 |
| 13 | 89 | 536 | 1010 | 735 | 396 | 404 | 325 | 242 | 153 | 120 | 108 | 110 |
| 14 | 89 | 766 | 929 | 878 | 404 | 356 | 318 | 234 | 140 | 118 | 117 | 126 |
| 15 | 97 | 917 | 917 | 991 | 404 | 332 | 376 | 223 | 145 | 116 | 127 | 128 |
| 16 | 102 | 1060 | 885 | 1090 | 464 | 320 | 348 | 211 | 174 | 106 | 151 | 125 |
| 17 | 138 | 1010 | 827 | 1080 | 522 | 315 | 330 | 207 | 167 | 93 | 138 | 121 |
| 18 | 204 | 919 | 777 | 1050 | 562 | 354 | 350 | 198 | 160 | 91 | 131 | 119 |
| 19 | 153 | 845 | 733 | 970 | 554 | 352 | 334 | 190 | 151 | 89 | 143 | 118 |
| 20 | 129 | 781 | 687 | 891 | 580 | 341 | 476 | 186 | 147 | 87 | 202 | 117 |
| 21 | 146 | 726 | 648 | 823 | 562 | 323 | 506 | 178 | 143 | 88 | 170 | 117 |
| 22 | 195 | 698 | 636 | 816 | 542 | 386 | 456 | 173 | 142 | 87 | 151 | 118 |
| 23 | 187 | 687 | 678 | 825 | 524 | 382 | 422 | 171 | 135 | 86 | 145 | 124 |
| 24 | 168 | 684 | 761 | 750 | 576 | 546 | 468 | 180 | 128 | 87 | 142 | 122 |
| 25 | 178 | 674 | 744 | 691 | 676 | 540 | 478 | 183 | 150 | 85 | 157 | 117 |
| 26 | 196 | 704 | 1090 | 646 | 668 | 528 | 436 | 174 | 140 | 83 | 153 | 114 |
| 27 | 216 | 715 | 1150 | 794 | 750 | 530 | 408 | 183 | 130 | 83 | 140 | 112 |
| 28 | 239 | 676 | 1040 | 753 | 878 | 518 | 384 | 178 | 125 | 81 | 136 | 110 |
| 29 | 444 | 640 | 970 | 693 | 816 | 494 | 357 | 181 | 120 | 74 | 131 | 108 |
| 30 | 606 | 634 | 946 | 644 | --- | 466 | 334 | 195 | 120 | 74 | 129 | 106 |
| 31 | 600 | --- | 863 | 604 | --- | 516 | --- | 184 | --- | 76 | 125 | --- |
| TOTAL | 5385 | 20418 | 33410 | 24185 | 14981 | 13979 | 11831 | 7274 | 4433 | 3133 | 3858 | 3542 |
| MEAN | 174 | 681 | 1078 | 780 | 517 | 451 | 394 | 235 | 148 | 101 | 124 | 118 |
| MAX | 606 | 1060 | 2000 | 1090 | 878 | 755 | 506 | 343 | 183 | 140 | 202 | 135 |
| MIN | 75 | 498 | 636 | 604 | 334 | 315 | 318 | 171 | 120 | 74 | 69 | 106 |
| CFSM | 1.11 | 4.34 | 6.87 | 4.97 | 3.29 | 2.87 | 2.51 | 1.50 | .94 | .64 | .79 | .75 |
| IN. | 1.28 | 4.84 | 7.92 | 5.73 | 3.55 | 3.31 | 2.80 | 1.72 | 1.05 | .74 | .91 | .84 |
| AC-FT | 10680 | 40500 | 66270 | 47970 | 29710 | 27730 | 23470 | 14430 | 8790 | 6210 | 7650 | 7030 |

CAL YR 1975 TOTAL 156640 MEAN 429 MAX 2000 MIN 65 CFSM 2.73 IN 37.11 AC-FT 310700
WTR YR 1976 TOTAL 146429 MEAN 400 MAX 2000 MIN 69 CFSM 2.55 IN 34.70 AC-FT 290400

## 12126500 SAMMAMISH RIVER AT BOTHELL, WA

LOCATION.--Lat 47°45'32", long 122°12'09", in NW¼NW¼ sec.8, T.26 N., R.5 E., King County, Hydrologic Unit 17110012, at 102nd Street bridge at Bothell, 1.0 mi (1.6 km) downstream from North Creek, and at mile 3.5 (5.6 km).

DRAINAGE AREA.--212 mi² (549 km²).

PERIOD OF RECORD.--Water years 1959-71, 1974, October 1975 to September 1976 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 16... | 1015 | 100 | 150 | 7.1 | 12.3 | 63 | 5 |
| 22... | 1130 | 198 | 120 | 7.4 | 10.6 | 104 | 10 |
| NOV | | | | | | | |
| 05... | 0930 | 500 | 115 | 7.4 | 11.5 | 54 | 4 |
| 19... | 1055 | 845 | 103 | 7.0 | 6.3 | 67 | 5 |
| DEC | | | | | | | |
| 03... | 0925 | 1340 | 100 | 7.1 | 9.3 | 113 | 13 |
| 17... | 0920 | 832 | 105 | 6.8 | 6.4 | 50 | 5 |
| JAN | | | | | | | |
| 14... | 1040 | 900 | 98 | 7.3 | 7.0 | 67 | 20 |
| 28... | 1105 | 755 | 98 | 7.2 | 7.9 | 46 | 6 |
| FEB | | | | | | | |
| 04... | 1010 | 482 | 116 | 7.2 | 5.1 | 50 | 6 |
| 19... | 1030 | 548 | 104 | 6.8 | 6.0 | 11 | 7 |
| MAR | | | | | | | |
| 03... | 1030 | 622 | 103 | 7.3 | 4.4 | 50 | 7 |
| 18... | 1045 | 363 | 120 | 7.2 | 8.1 | 63 | 8 |
| APR | | | | | | | |
| 07... | 1115 | 365 | 111 | 7.0 | 9.0 | 46 | 3 |
| 21... | 1055 | 514 | 100 | 7.1 | 10.0 | 79 | 10 |
| MAY | | | | | | | |
| 05... | 1035 | 336 | 111 | 6.8 | 12.2 | 60 | 4 |
| 19... | 1145 | 188 | 122 | 6.9 | 14.5 | 50 | 4 |
| JUN | | | | | | | |
| 03... | 1115 | 175 | 121 | 6.8 | 13.3 | 75 | 6 |
| 16... | 1110 | 178 | 120 | 7.0 | 14.7 | 75 | 9 |
| JUL | | | | | | | |
| 08... | 1040 | 153 | 125 | 7.4 | 18.5 | 110 | 10 |
| 21... | 1045 | 87 | 141 | 7.2 | 18.1 | 67 | 6 |
| AUG | | | | | | | |
| 04... | 1015 | 68 | 142 | 7.3 | 17.7 | 67 | 3 |
| 18... | 0953 | 130 | 127 | 7.3 | 17.0 | 58 | 2 |
| SEP | | | | | | | |
| 09... | 0930 | 118 | 120 | 7.5 | 16.0 | 46 | 4 |
| 29... | 0950 | 107 | 129 | 7.4 | 16.8 | -- | 4 |

| DATE | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 16... | 9.3 | B1600 | B340 | .94 | .22 | .09 | .02 |
| 22... | 9.5 | 4600 | 330 | .46 | .16 | .09 | .02 |
| NOV | | | | | | | |
| 05... | 9.4 | B1000 | B300 | .36 | .10 | .04 | .01 |
| 19... | 10.3 | B850 | 120 | .71 | .10 | .04 | .01 |
| DEC | | | | | | | |
| 03... | 9.6 | B4000 | 520 | .82 | .51 | .10 | .01 |
| 17... | 10.5 | B500 | B80 | .58 | .07 | .04 | .00 |
| JAN | | | | | | | |
| 14... | 11.0 | >1600 | >160 | .66 | .30 | .14 | .04 |
| 28... | 11.1 | B1000 | B120 | .69 | .10 | .04 | .00 |
| FEB | | | | | | | |
| 04... | 11.5 | B400 | 110 | .60 | .22 | .21 | .14 |
| 19... | 11.5 | B600 | B50 | .65 | .13 | .06 | .02 |
| MAR | | | | | | | |
| 03... | 12.1 | 540 | 58 | .70 | .08 | .03 | .00 |
| 18... | 11.2 | 2700 | B740 | .58 | .15 | .07 | .01 |
| APR | | | | | | | |
| 07... | 11.9 | 1300 | 240 | .50 | .09 | .04 | .01 |
| 21... | 11.3 | >5100 | 1100 | .60 | .27 | .07 | .01 |
| MAY | | | | | | | |
| 05... | 10.7 | 5600 | 2400 | .41 | .21 | .05 | .01 |
| 19... | 10.8 | 500 | 120 | .34 | .10 | .04 | .01 |
| JUN | | | | | | | |
| 03... | 11.2 | 830 | 220 | .34 | .18 | .06 | .01 |
| 16... | 9.9 | B1600 | 84 | .31 | .13 | .07 | .01 |
| JUL | | | | | | | |
| 08... | 8.5 | 12000 | 1400 | .35 | .20 | .11 | .02 |
| 21... | 8.2 | 4800 | 740 | .14 | .19 | .06 | .02 |
| AUG | | | | | | | |
| 04... | 8.0 | B830 | 220 | .14 | .17 | .07 | .02 |
| 18... | 8.9 | >1000 | 250 | .23 | .13 | .10 | .02 |
| SEP | | | | | | | |
| 09... | 9.5 | B1700 | 180 | .16 | .11 | .06 | .01 |
| 29... | 9.4 | B1500 | 290 | .20 | .11 | .07 | .02 |

B Results based upon colony counts outside the ideal range.

## 12127100 SWAMP CREEK AT KENMORE, WA

LOCATION.--Lat 47°45'22", long 122°13'57", in NE¼ sec.12, T.26 N., R.4 E., King County, Hydrologic Unit 17110012, on right bank on upstream side of Bothell Way bridge (State Highway 522) at Kenmore and at mile 0.5 (0.8 km).

DRAINAGE AREA.--23.1 mi$^2$ (59.8 km$^2$).

PERIOD OF RECORD.--October 1963 to June 1973, October 1973 to April 1974, October 1974 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 14.46 ft (4.407 m) above mean sea level (Washington State Highway Department). Apr. 27, 1967 to Sept. 7, 1967, nonrecording gage at same site and datum.

REMARKS.--Records good. Some minor diversions for domestic use upstream from station. No regulation.

AVERAGE DISCHARGE.--11 years (1963-72, 1974-76), 35.4 ft$^3$/s (1.003 m$^3$/s), 20.81 in/yr (529 mm/yr), 25,650 acre-ft/yr (31.6 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 487 ft$^3$/s (13.8 m$^3$/s) Mar. 5, 1972, gage height, 6.03 ft (1.838 m); minimum, 2.7 ft$^3$/s (0.08 m$^3$/s) July 31, Aug. 1, 2, 1965, July 19, 20, 1970; minimum gage height, 1.71 ft (0.521 m) July 31, Aug. 1, 2, 1965.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft$^3$/s (5.66 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 15 | 1045 | 237 | 6.71 | 4.16 | 1.268 | Dec. 26 | 1430 | 268 | 7.59 | 4.34 | 1.323 |
| Dec. 4 | 0700 | *283 | 8.01 | *4.43 | 1.350 | Feb. 27 | 2215 | 215 | 6.09 | 4.04 | 1.231 |

Minimum discharge, 3.8 ft$^3$/s (0.108 m$^3$/s) July 25, 26, 27, 28, gage height, 1.86 ft (0.567 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.5 | 46 | 42 | 49 | 34 | 96 | 78 | 21 | 16 | 8.3 | 5.0 | 9.4 |
| 2 | 4.5 | 40 | 73 | 42 | 32 | 72 | 59 | 36 | 31 | 7.1 | 4.4 | 7.2 |
| 3 | 7.7 | 33 | 135 | 43 | 31 | 57 | 47 | 27 | 22 | 9.8 | 9.1 | 6.9 |
| 4 | 12 | 30 | 264 | 61 | 28 | 47 | 39 | 22 | 16 | 12 | 7.2 | 6.9 |
| 5 | 22 | 25 | 158 | 50 | 25 | 39 | 34 | 29 | 13 | 9.6 | 6.9 | 10 |
| 6 | 16 | 73 | 100 | 44 | 23 | 35 | 31 | 23 | 11 | 6.3 | 8.1 | 28 |
| 7 | 9.6 | 133 | 97 | 50 | 23 | 33 | 28 | 20 | 11 | 6.6 | 22 | 15 |
| 8 | 4.6 | 95 | 92 | 55 | 25 | 29 | 35 | 18 | 10 | 18 | 32 | 11 |
| 9 | 21 | 74 | 74 | 45 | 27 | 28 | 31 | 18 | 9.4 | 8.8 | 13 | 9.7 |
| 10 | 20 | 50 | 66 | 54 | 23 | 30 | 27 | 15 | 9.1 | 7.4 | 9.4 | 9.1 |
| 11 | 11 | 36 | 54 | 66 | 31 | 30 | 36 | 16 | 9.1 | 6.9 | 7.7 | 8.9 |
| 12 | 9.6 | 31 | 45 | 49 | 45 | 27 | 29 | 13 | 11 | 6.5 | 6.5 | 8.9 |
| 13 | 7.7 | 39 | 57 | 40 | 57 | 31 | 26 | 14 | 14 | 6.3 | 6.9 | 8.6 |
| 14 | 7.4 | 149 | 51 | 106 | 52 | 25 | 25 | 15 | 10 | 5.6 | 7.9 | 25 |
| 15 | 7.9 | 203 | 73 | 90 | 46 | 23 | 40 | 12 | 18 | 6.1 | 13 | 17 |
| 16 | 13 | 190 | 56 | 83 | 57 | 24 | 32 | 11 | 25 | 5.9 | 19 | 13 |
| 17 | 57 | 126 | 45 | 77 | 80 | 26 | 30 | 11 | 16 | 5.4 | 11 | 11 |
| 18 | 82 | 90 | 39 | 73 | 65 | 50 | 34 | 10 | 12 | 5.2 | 8.9 | 10 |
| 19 | 29 | 66 | 35 | 55 | 52 | 58 | 32 | 9.7 | 11 | 5.2 | 24 | 9.1 |
| 20 | 21 | 54 | 34 | 47 | 54 | 50 | 95 | 9.4 | 10 | 5.6 | 43 | 8.6 |
| 21 | 32 | 46 | 30 | 39 | 42 | 42 | 82 | 9.1 | 9.1 | 5.9 | 16 | 8.1 |
| 22 | 36 | 52 | 34 | 74 | 36 | 62 | 58 | 8.9 | 9.4 | 5.0 | 11 | 8.4 |
| 23 | 31 | 51 | 73 | 89 | 39 | 52 | 46 | 8.9 | 8.9 | 4.8 | 11 | 8.4 |
| 24 | 22 | 69 | 95 | 65 | 68 | 149 | 71 | 11 | 16 | 4.5 | 11 | 8.1 |
| 25 | 24 | 66 | 82 | 53 | 92 | 105 | 65 | 13 | 23 | 4.4 | 16 | 7.4 |
| 26 | 32 | 77 | 213 | 47 | 90 | 80 | 49 | 10 | 12 | 4.4 | 18 | 7.2 |
| 27 | 46 | 74 | 150 | 89 | 139 | 66 | 39 | 14 | 9.3 | 4.5 | 13 | 6.7 |
| 28 | 50 | 58 | 100 | 58 | 158 | 60 | 34 | 11 | 8.6 | 4.5 | 11 | 6.5 |
| 29 | 158 | 45 | 86 | 47 | 127 | 49 | 28 | 14 | 8.4 | 5.4 | 10 | 6.3 |
| 30 | 136 | 44 | 76 | 40 | --- | 43 | 24 | 17 | 8.4 | 6.1 | 10 | 6.3 |
| 31 | 72 | --- | 61 | 36 | --- | 111 | --- | 15 | --- | 5.0 | 11 | --- |
| TOTAL | 1007.5 | 2165 | 2590 | 1816 | 1601 | 1629 | 1284 | 482.0 | 397.7 | 207.1 | 403.0 | 306.7 |
| MEAN | 32.5 | 72.2 | 83.5 | 58.6 | 55.2 | 52.5 | 42.8 | 15.5 | 13.3 | 6.68 | 13.0 | 10.2 |
| MAX | 158 | 203 | 264 | 106 | 158 | 149 | 95 | 36 | 31 | 18 | 43 | 28 |
| MIN | 4.5 | 25 | 30 | 36 | 23 | 23 | 24 | 8.9 | 8.4 | 4.4 | 4.4 | 6.3 |
| CFSM | 1.41 | 3.13 | 3.61 | 2.54 | 2.39 | 2.27 | 1.85 | .67 | .58 | .29 | .56 | .44 |
| IN. | 1.62 | 3.49 | 4.17 | 2.92 | 2.58 | 2.62 | 2.07 | .78 | .64 | .33 | .65 | .49 |
| AC-FT | 2000 | 4290 | 5140 | 3600 | 3180 | 3230 | 2550 | 956 | 789 | 411 | 799 | 608 |

CAL YR 1975 TOTAL 14423.6 MEAN 39.5 MAX 270 MIN 3.9 CFSM 1.71 IN 23.23 AC-FT 28610
WTR YR 1976 TOTAL 13889.0 MEAN 37.9 MAX 264 MIN 4.4 CFSM 1.64 IN 22.37 AC-FT 27550

## 12127400 LAKE BALLINGER NEAR EDMONDS, WA

**LOCATION.**--Lat 47°46'43", long 122°19'38", in SE¼SW¼ sec.32, T.27 N., R.4 E., Snohomish County, Hydrologic Unit 17110012, at south end of lake, 0.2 mi (0.3 km) southwest of lake outlet, and 3 mi (4.8 km) southeast of Edmonds.

**DRAINAGE AREA.**--5.09 mi$^2$ (13.18 km$^2$).

**PERIOD OF RECORD.**--January 1961 to June 1963 (fragmentary), July 1963 to December 1965, January to June 1966 (fragmentary), July 1966 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 275.65 ft (84.018 m) above mean sea level (levels by Washington State Department of Conservation from King County Aerial Survey bench mark). Prior to June 28, 1966, nonrecording gage at same site and datum. June 28 to Sept. 30, 1966, nonrecording gage at site about 700 ft (213 m) north of lake outlet at same datum.

**REMARKS.**--Records good. Outflow from lake controlled by flashboards in weir at outlet. No known diversion.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum gage height, 4.05 ft (1.234 m), from range in stage, about Mar. 6, 1972; minimum observed 1.00 ft (0.305 m) Jan. 24, 27, 1962.

**EXTREMES FOR CURRENT YEAR.**--Maximum gage height, 3.24 ft (0.988 m) Dec. 4; minimum observed, 1.53 ft (0.466 m) May 19. 20.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.24 | 2.35 | 1.86 | 1.97 | 1.78 | 2.40 | 2.15 | 1.68 | 1.92 | 2.21 | 1.90 | 1.96 |
| 2 | 2.29 | 2.22 | 1.92 | 1.90 | 1.75 | 2.22 | 2.04 | 1.77 | 2.13 | 2.20 | 1.88 | 1.93 |
| 3 | 2.35 | 2.11 | 2.26 | 1.89 | 1.73 | 2.09 | 1.95 | 1.75 | 2.23 | 2.21 | 1.89 | 1.90 |
| 4 | 2.42 | 2.04 | 3.09 | 1.91 | 1.70 | 1.99 | 1.88 | 1.71 | 2.24 | 2.22 | 1.88 | 1.87 |
| 5 | 2.50 | --- | 3.11 | 1.88 | 1.68 | 1.91 | 1.83 | 1.72 | 2.24 | 2.23 | 1.84 | 1.88 |
| 6 | 2.53 | --- | 2.86 | 1.85 | 1.66 | 1.85 | 1.79 | 1.68 | 2.23 | 2.23 | 1.83 | 2.09 |
| 7 | 2.42 | 2.56 | 2.68 | 1.85 | 1.64 | 1.81 | 1.76 | 1.66 | 2.23 | 2.24 | 1.89 | 2.09 |
| 8 | 2.20 | 2.50 | 2.56 | 1.89 | 1.64 | 1.77 | 1.79 | 1.63 | 2.22 | 2.39 | 2.16 | 2.05 |
| 9 | 2.16 | 2.41 | 2.40 | 1.87 | 1.66 | 1.74 | 1.77 | 1.61 | 2.22 | 2.37 | 2.07 | 2.03 |
| 10 | 2.13 | 2.24 | 2.26 | 1.89 | 1.64 | 1.73 | 1.74 | 1.59 | 2.21 | 2.35 | 1.98 | 2.00 |
| 11 | 1.99 | 2.10 | 2.14 | 1.96 | 1.71 | 1.72 | 1.77 | 1.58 | 2.21 | 2.33 | 1.90 | 1.97 |
| 12 | 1.90 | 2.00 | 2.03 | 1.92 | 1.90 | 1.71 | 1.77 | 1.58 | 2.22 | 2.30 | 1.84 | 1.95 |
| 13 | 1.82 | 1.97 | 2.04 | 1.68 | 1.98 | 1.78 | 1.75 | 1.60 | 2.26 | 2.28 | 1.79 | 1.93 |
| 14 | 1.77 | 2.48 | 2.02 | 2.10 | 2.02 | 1.75 | 1.72 | 1.65 | 2.26 | 2.26 | 1.77 | 2.11 |
| 15 | 1.73 | 2.88 | 2.02 | 2.17 | 1.97 | 1.72 | 1.76 | 1.65 | 2.33 | 2.24 | 1.82 | 2.19 |
| 16 | 1.76 | 3.06 | 1.96 | 2.13 | 2.00 | 1.71 | 1.73 | 1.63 | 2.44 | 2.22 | 1.94 | 2.17 |
| 17 | 2.06 | 2.93 | 1.90 | 2.07 | 2.08 | 1.73 | 1.71 | 1.58 | 2.42 | 2.19 | 1.94 | 2.14 |
| 18 | 2.40 | 2.72 | 1.85 | 2.06 | 2.09 | 1.88 | 1.71 | 1.56 | 2.39 | 2.17 | 1.92 | 2.13 |
| 19 | 2.23 | 2.48 | 1.81 | 1.98 | 2.01 | 1.91 | 1.71 | 1.54 | 2.38 | 2.14 | 2.01 | --- |
| 20 | 2.08 | 2.30 | 1.77 | 1.91 | 2.02 | 1.93 | 1.92 | 1.54 | 2.36 | 2.12 | 2.30 | --- |
| 21 | 2.10 | 2.15 | 1.75 | 1.86 | 1.94 | 1.91 | 1.94 | 1.55 | 2.33 | 2.10 | 2.27 | --- |
| 22 | 2.11 | 2.11 | 1.77 | 1.93 | 1.88 | 1.95 | 1.87 | 1.56 | 2.31 | 2.08 | 2.22 | --- |
| 23 | 2.14 | 2.09 | 2.04 | 2.02 | 1.89 | 1.96 | 1.82 | 1.56 | 2.28 | 2.07 | 2.19 | --- |
| 24 | 2.02 | 2.10 | 2.12 | 1.97 | 1.98 | 2.33 | 1.91 | 1.59 | 2.29 | 2.05 | 2.18 | --- |
| 25 | 2.01 | 2.09 | 2.36 | 1.90 | 2.14 | 2.36 | 1.97 | 1.64 | 2.40 | 2.03 | 2.17 | --- |
| 26 | 2.01 | 2.07 | 2.89 | 1.86 | 2.23 | 2.22 | 1.91 | 1.65 | 2.35 | 2.00 | 2.15 | --- |
| 27 | 2.06 | 2.04 | 2.65 | 2.02 | 2.46 | 2.11 | 1.84 | 1.70 | 2.32 | 1.98 | 2.13 | --- |
| 28 | 2.11 | 1.96 | 2.42 | 1.99 | 2.75 | 2.01 | 1.79 | 1.72 | 2.28 | 1.96 | 2.11 | --- |
| 29 | 2.62 | 1.90 | 2.30 | 1.92 | 2.61 | 1.93 | 1.74 | 1.76 | 2.25 | 1.94 | 2.07 | --- |
| 30 | 2.84 | 1.86 | 2.18 | 1.85 | --- | 1.88 | 1.71 | 1.85 | 2.23 | 1.94 | 2.03 | --- |
| 31 | 2.61 | --- | 2.06 | 1.82 | --- | 2.22 | --- | 1.88 | --- | 1.92 | 2.00 | --- |
| MEAN | 2.18 | --- | 2.23 | 1.94 | 1.95 | 1.94 | 1.83 | 1.65 | 2.27 | 2.16 | 2.00 | --- |
| MAX | 2.84 | --- | 3.11 | 2.17 | 2.75 | 2.40 | 2.15 | 1.88 | 2.44 | 2.39 | 2.30 | --- |
| MIN | 1.73 | --- | 1.75 | 1.82 | 1.64 | 1.71 | 1.71 | 1.54 | 1.92 | 1.92 | 1.77 | --- |

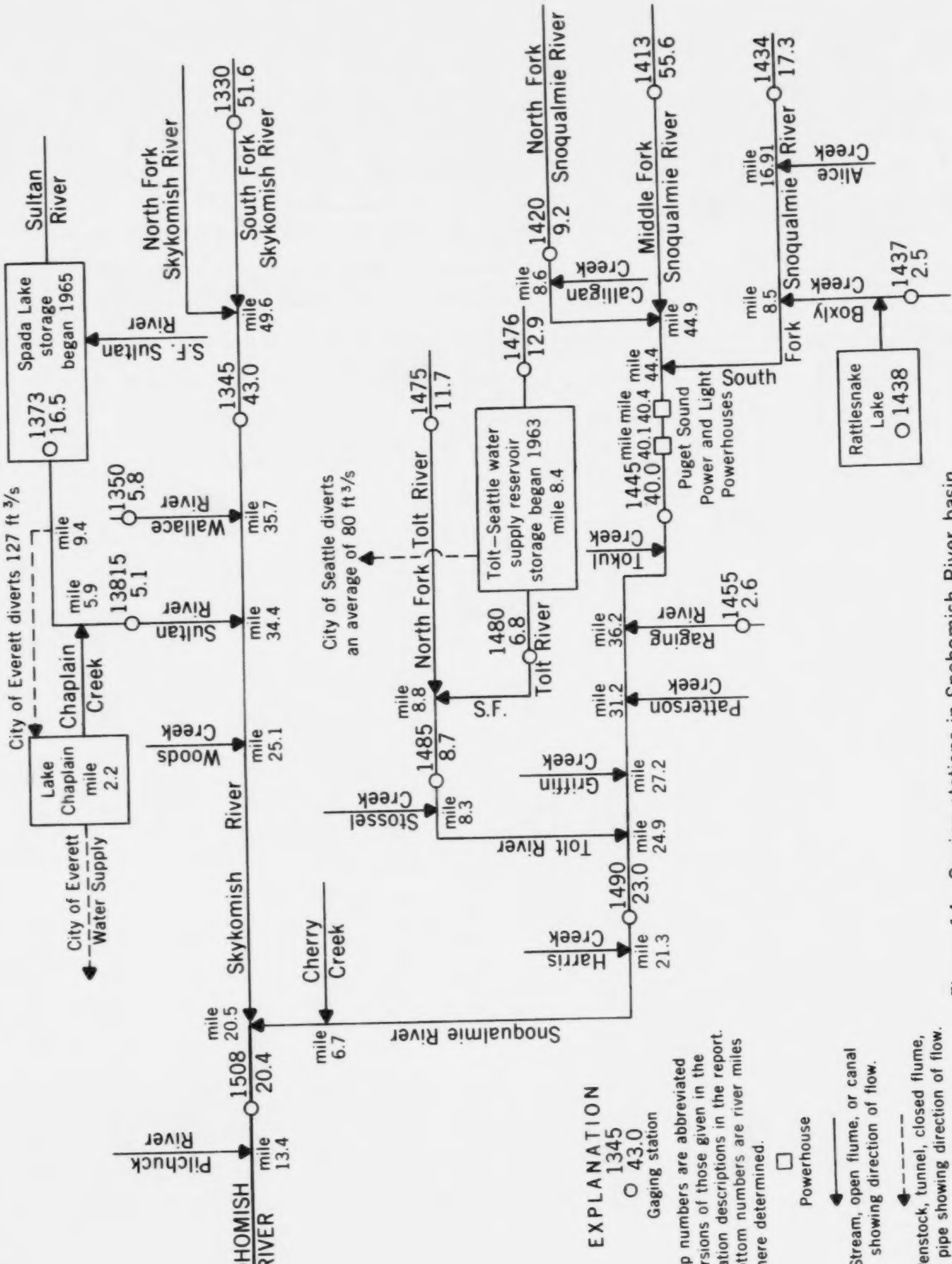
SNOHOMISH RIVER
Pilchuck River
mile 13.4
1508
20.4
mile 20.5
Skykomish River
City of Everett Water Supply
Lake Chaplain mile 2.2
City of Everett diverts 127 ft³/s
Chaplain Creek
mile 5.9
mile 9.4
1373
16.5
Spada Lake storage began 1965
Sultan River
S.F. Sultan River
Woods Creek
mile 25.1
13815
5.1
Sultan River
mile 34.4
1350
5.8
Wallace River
mile 35.7
1345
43.0
mile 49.6
North Fork Skykomish River
1330
51.6
South Fork Skykomish River
Cherry Creek
mile 6.7
Snoqualmie River
Harris Creek
mile 21.3
1490
23.0
mile 24.9
Tolt River
Stossel Creek
mile 8.3
1485
8.7
mile 8.8
S.F.
1480
6.8
Tolt River
North Fork Tolt River
City of Seattle diverts an average of 80 ft³/s
Tolt–Seattle water supply reservoir storage began 1963 mile 8.4
1475
11.7
1476
12.9
Griffin Creek
mile 27.2
Patterson Creek
mile 31.2
Raging River
mile 36.2
1455
2.6
Tokul Creek
1445
40.0
mile 40.1
mile 40.4
Puget Sound Power and Light Powerhouses
mile 44.4
mile 44.9
Calligan Creek
mile 8.6
1420
9.2
North Fork Snoqualmie River
Middle Fork Snoqualmie River
1413
55.6
South Fork Snoqualmie River
mile 8.5
Boxly Creek
1437
2.5
Rattlesnake Lake
1438
mile 16.91
Alice Creek
1434
17.3
EXPLANATION
1345
43.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 14. Gaging stations in Snohomish River basin.

## 12133000 SOUTH FORK SKYKOMISH RIVER NEAR INDEX, WA

LOCATION.--Lat 47°48'20", long 121°32'44", in NE¼ sec.29, T.27 N., R.10 E., Snohomish County, Hydrologic Unit 17110009, on right bank 600 ft (183 m) upstream from Sunset Falls, 1.1 mi (1.8 km) southeast of Index, 2.0 mi (3.2 km) upstream from confluence with North Fork, and at mile 51.6 (83.0 km).

DRAINAGE AREA.--355 mi² (919 km²).

PERIOD OF RECORD.--October 1902 to September 1905, April 1911 to current year.

REVISED RECORDS.--WSP 512: 1903-5, 1911-14. WSP 572: Drainage area. WSP 792: 1934. WSP 1286: 1903-5(M), 1912(M), 1914-29(M), 1931-34(M).

GAGE.--Water-stage recorder. Datum of gage is 574.80 ft (175.199 m) above mean sea level. See WSP 1932 for history of changes prior to Mar. 15, 1934.

REMARKS.--Records excellent. Small diversions for domestic use. No regulation.

AVERAGE DISCHARGE.--68 years, 2,457 ft³/s (69.58 m³/s), 93.99 in/yr (2,387 mm/yr), 1,780,000 acre-ft/yr (2,190 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,000 ft³/s (1,560 m³/s) Dec. 12, 1921, gage height, 22.8 ft (6.95 m), from high-water marks, site then in use, from rating curve extended above 22,500 ft³/s (637 m³/s) on basis of slope-area measurement at gage height 22.12 ft (6.742 m); minimum, 165 ft³/s (4.67 m³/s) Nov. 29, 1952.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1897 reached a stage of about 5 ft (1.5 m) higher than that of Dec. 12, 1921, discharge, about, 70,000 ft³/s (1,980 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge above base of 12,000 ft³/s (340 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 15 | 1000 | 12,400 | 351 | 11.97 | 3.648 | Dec. 26 | 1700 | 14,000 | 396 | 12.59 | 3.837 |
| Nov. 24 | 1600 | 15,800 | 447 | 13.32 | 4.060 | Jan. 27 | 0900 | 13,300 | 377 | 12.30 | 3.749 |
| Dec. 3 | 0500 | *47,400 | 1,340 | *21.45 | 6.538 | | | | | | |

Minimum discharge, 427 ft³/s (12.1 m³/s) Oct. 2, 3, gage height, 1.39 ft (0.424 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 436 | 4360 | 14000 | 3280 | 2880 | 1020 | 1270 | 4780 | 2700 | 4550 | 2280 | 1330 |
| 2 | 431 | 7490 | 37100 | 2740 | 2720 | 935 | 1140 | 7360 | 2450 | 4200 | 2190 | 1260 |
| 3 | 484 | 8910 | 39500 | 2400 | 2510 | 900 | 1100 | 6090 | 2250 | 4270 | 2230 | 1150 |
| 4 | 785 | 6590 | 30700 | 3020 | 2230 | 831 | 1210 | 5160 | 2210 | 4630 | 2030 | 1070 |
| 5 | 877 | 5100 | 11100 | 4130 | 1950 | 822 | 1510 | 4680 | 2240 | 4840 | 1920 | 1120 |
| 6 | 1410 | 4290 | 6540 | 2960 | 1800 | 809 | 2330 | 4200 | 2660 | 5660 | 1940 | 1660 |
| 7 | 837 | 4190 | 5130 | 2460 | 1690 | 795 | 2280 | 4610 | 3260 | 5950 | 2910 | 1460 |
| 8 | 704 | 3840 | 9160 | 2390 | 1610 | 782 | 3160 | 6410 | 4100 | 6690 | 2510 | 1150 |
| 9 | 669 | 3170 | 7690 | 2260 | 1510 | 791 | 3710 | 7460 | 4380 | 5370 | 2000 | 1020 |
| 10 | 863 | 2630 | 5770 | 2280 | 1400 | 985 | 3400 | 8140 | 4930 | 4290 | 1800 | 938 |
| 11 | 716 | 2270 | 4450 | 3150 | 1460 | 1090 | 4060 | 7490 | 4380 | 4000 | 1810 | 881 |
| 12 | 639 | 2020 | 3580 | 2370 | 3170 | 990 | 3570 | 5660 | 4610 | 3860 | 1790 | 890 |
| 13 | 591 | 1900 | 3030 | 1920 | 2620 | 970 | 2950 | 5860 | 4080 | 3490 | 1710 | 885 |
| 14 | 591 | 6460 | 2600 | 2000 | 2250 | 915 | 2560 | 5660 | 3350 | 3550 | 1570 | 849 |
| 15 | 1770 | 9580 | 2810 | 8030 | 2060 | 881 | 2370 | 4930 | 4050 | 3860 | 1490 | 868 |
| 16 | 1320 | 5890 | 2460 | 9760 | 2810 | 863 | 2000 | 5340 | 7420 | 4530 | 1710 | 809 |
| 17 | 2310 | 4090 | 2130 | 6690 | 3060 | 1000 | 1800 | 6020 | 6170 | 4750 | 1560 | 782 |
| 18 | 3690 | 3110 | 1930 | 5420 | 2540 | 1550 | 1690 | 4660 | 6770 | 4240 | 1500 | 764 |
| 19 | 4560 | 2560 | 1780 | 4070 | 2030 | 1710 | 1630 | 4110 | 7270 | 3610 | 1390 | 751 |
| 20 | 3910 | 2220 | 1640 | 3250 | 1710 | 1570 | 2320 | 3540 | 6210 | 3480 | 3390 | 738 |
| 21 | 2680 | 1980 | 1520 | 2730 | 1500 | 1510 | 2280 | 3480 | 5730 | 3190 | 2320 | 735 |
| 22 | 2300 | 1850 | 1430 | 2500 | 1360 | 1450 | 2040 | 3880 | 5160 | 2750 | 1800 | 727 |
| 23 | 1910 | 3460 | 1410 | 2480 | 1340 | 1460 | 1810 | 4220 | 4440 | 2850 | 1550 | 715 |
| 24 | 1640 | 10600 | 2900 | 2180 | 1420 | 1950 | 1930 | 3810 | 4280 | 3380 | 1400 | 687 |
| 25 | 1830 | 6980 | 3350 | 1950 | 1370 | 2470 | 2080 | 4130 | 4660 | 3300 | 1740 | 663 |
| 26 | 2210 | 7600 | 10300 | 1830 | 1260 | 1840 | 1880 | 3720 | 3830 | 3100 | 2600 | 667 |
| 27 | 1980 | 5570 | 7570 | 9190 | 1200 | 1580 | 1850 | 5290 | 3610 | 2770 | 2040 | 635 |
| 28 | 1930 | 3890 | 4630 | 5660 | 1160 | 1470 | 2150 | 4900 | 4260 | 2440 | 1770 | 631 |
| 29 | 3540 | 2940 | 5270 | 4370 | 1080 | 1310 | 2580 | 3830 | 5570 | 2460 | 1600 | 619 |
| 30 | 7620 | 2730 | 6240 | 3610 | --- | 1220 | 3430 | 3450 | 5070 | 2320 | 1480 | 599 |
| 31 | 4660 | --- | 4280 | 3120 | --- | 1370 | --- | 2970 | --- | 2280 | 1400 | --- |
| TOTAL | 59893 | 138270 | 242000 | 114200 | 55700 | 37759 | 68090 | 155840 | 132100 | 120660 | 59430 | 26998 |
| MEAN | 1932 | 4609 | 7806 | 3684 | 1921 | 1218 | 2270 | 5027 | 4403 | 3892 | 1917 | 900 |
| MAX | 7620 | 10600 | 39500 | 9760 | 3170 | 2470 | 4060 | 8140 | 7420 | 6690 | 3390 | 1660 |
| MIN | 431 | 1850 | 1410 | 1830 | 1080 | 782 | 1100 | 2970 | 2210 | 2280 | 1390 | 599 |
| CFSM | 5.44 | 13.0 | 22.0 | 10.4 | 5.41 | 3.43 | 6.39 | 14.2 | 12.4 | 11.0 | 5.40 | 2.54 |
| IN. | 6.28 | 14.49 | 25.36 | 11.97 | 5.84 | 3.96 | 7.14 | 16.33 | 13.84 | 12.64 | 6.23 | 2.83 |
| AC-FT | 118800 | 274300 | 480000 | 226500 | 110500 | 74890 | 135100 | 309100 | 262000 | 239300 | 117900 | 53550 |

CAL YR 1975 TOTAL 1154510 MEAN 3163 MAX 39500 MIN 431 CFSM 8.91 IN 120.98 AC-FT 2290000
WTR YR 1976 TOTAL 1210940 MEAN 3309 MAX 39500 MIN 431 CFSM 9.32 IN 126.89 AC-FT 2402000

## 12134500 SKYKOMISH RIVER NEAR GOLD BAR, WA

LOCATION.--Lat 47°50'15", long 121°39'56", in SW¼SW¼ sec.9, T.27 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on right bank 2.0 mi (3.2 km) southeast of Gold Bar, 7.3 mi (11.7 km) upstream from Wallace River, and at mile 43.0 (69.2 km).

DRAINAGE AREA.--535 mi² (1,386 km²).

PERIOD OF RECORD.--September 1928 to current year. Chemical analyses, July 1959 to September 1970, at site 0.7 mi (1.1 km) upstream from gaging station.

REVISED RECORDS.--WSP 1316: 1932-35(M), 1944(M).

GAGE.--Water-stage recorder. Datum of gage is 209.26 ft (63.782 m) above mean sea level.

REMARKS.--Records good. No regulation. Some small diversions above station.

AVERAGE DISCHARGE.--48 years, 4,017 ft³/s (113.8 m³/s) 101.96 in/yr (2,590 mm/yr), 2,910,000 acre-ft/yr (3,590 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 88,700 ft³/s (2,510 m³/s) Dec. 21, 1933, gage height, 21.3 ft (6.49 m), from rating curve extended above 32,000 ft³/s (906 m³/s); minimum, 315 ft³/s (8.92 m³/s) Nov. 29, 1952; minimum gage height, 2.73 ft (0.832 m) Dec. 1, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 19,000 ft³/s (538 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 2 | 2100 | 22,800 | 646 | 11.90 | 3.627 | Dec. 8 | 1300 | 19,400 | 549 | 11.23 | 3.423 |
| Nov. 15 | 1000 | 20,800 | 589 | 11.50 | 3.505 | Dec. 26 | 1800 | 24,000 | 680 | 12.14 | 3.700 |
| Nov. 24 | 1500 | 25,800 | 731 | 12.49 | 3.807 | Jan. 15 | 2200 | 20,400 | 578 | 11.43 | 3.484 |
| Dec. 3 | 0230 | *76,600 | 2,170 | *19.85 | 6.050 | Jan. 27 | 0230 | 22,800 | 646 | 11.90 | 3.627 |

Minimum discharge, 668 ft³/s (18.9 m³/s) Oct. 2, 3, gage height, 3.74 ft (1.140 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 682 | 7400 | 24600 | 5150 | 4500 | 1510 | 1900 | 7830 | 4320 | 7480 | 3840 | 2270 |
| 2 | 675 | 14100 | 64500 | 4300 | 4200 | 1390 | 1710 | 11900 | 3900 | 6900 | 3650 | 2120 |
| 3 | 798 | 16500 | 63400 | 3750 | 3850 | 1330 | 1650 | 9600 | 3560 | 6960 | 3760 | 1910 |
| 4 | 1340 | 11400 | 48000 | 4800 | 3560 | 1230 | 1780 | 8000 | 3470 | 7620 | 3260 | 1780 |
| 5 | 1480 | 8640 | 17400 | 6580 | 3100 | 1210 | 2180 | 7300 | 3520 | 7980 | 3110 | 1920 |
| 6 | 2230 | 7280 | 10300 | 4720 | 2830 | 1200 | 3520 | 6580 | 4280 | 9340 | 3100 | 2910 |
| 7 | 1370 | 6950 | 7950 | 3420 | 2600 | 1190 | 3490 | 7250 | 5340 | 9870 | 4460 | 2570 |
| 8 | 1200 | 6400 | 14800 | 3630 | 2410 | 1160 | 5020 | 10200 | 6760 | 11200 | 3940 | 1990 |
| 9 | 1110 | 5350 | 12300 | 3600 | 2370 | 1160 | 5900 | 11900 | 7140 | 8790 | 3080 | 1710 |
| 10 | 1430 | 4420 | 9120 | 3620 | 2130 | 1340 | 5280 | 13100 | 7960 | 6970 | 2850 | 1570 |
| 11 | 1190 | 3770 | 6980 | 4870 | 2300 | 1600 | 6250 | 12000 | 6980 | 6510 | 2960 | 1480 |
| 12 | 1030 | 3320 | 5610 | 3730 | 4800 | 1450 | 5530 | 8940 | 7450 | 6300 | 2910 | 1530 |
| 13 | 960 | 3150 | 4780 | 3000 | 4100 | 1410 | 4520 | 9240 | 6540 | 5640 | 2750 | 1470 |
| 14 | 951 | 11200 | 4120 | 3340 | 3510 | 1330 | 3920 | 8820 | 5330 | 5750 | 2440 | 1450 |
| 15 | 3230 | 16300 | 4380 | 13600 | 3250 | 1280 | 3580 | 7700 | 6520 | 6370 | 2380 | 1430 |
| 16 | 2320 | 9600 | 3830 | 16700 | 4300 | 1250 | 2980 | 8430 | 12800 | 7530 | 2890 | 1370 |
| 17 | 4910 | 6700 | 3290 | 10900 | 4700 | 1480 | 2690 | 9540 | 10200 | 7910 | 2450 | 1340 |
| 18 | 6950 | 5110 | 2980 | 8580 | 4100 | 2410 | 2540 | 7220 | 11100 | 7010 | 2310 | 1300 |
| 19 | 7950 | 4220 | 2720 | 6430 | 3400 | 2630 | 2470 | 6380 | 12000 | 5950 | 2230 | 1270 |
| 20 | 6900 | 3640 | 2530 | 5110 | 2600 | 2440 | 3640 | 5680 | 10100 | 5740 | 5480 | 1270 |
| 21 | 4620 | 3180 | 2320 | 4300 | 2250 | 2350 | 3430 | 5490 | 9200 | 5220 | 3770 | 1250 |
| 22 | 3790 | 2960 | 2200 | 3940 | 2040 | 2270 | 3030 | 6150 | 8210 | 4420 | 2880 | 1230 |
| 23 | 3010 | 5640 | 2210 | 3890 | 2000 | 2240 | 2690 | 6660 | 7160 | 4610 | 2500 | 1190 |
| 24 | 2510 | 17800 | 4800 | 3380 | 2110 | 3170 | 2940 | 6030 | 6960 | 5650 | 2310 | 1140 |
| 25 | 2860 | 11200 | 5530 | 3010 | 2050 | 3960 | 3150 | 6700 | 7490 | 5520 | 3000 | 1100 |
| 26 | 3470 | 11600 | 17300 | 2800 | 1870 | 2860 | 2830 | 6040 | 6070 | 5220 | 4340 | 1070 |
| 27 | 3170 | 8670 | 12200 | 15600 | 1810 | 2440 | 2810 | 8740 | 5720 | 4590 | 3300 | 1050 |
| 28 | 3110 | 6000 | 7280 | 9120 | 1750 | 2280 | 3290 | 7970 | 6820 | 4040 | 2890 | 1040 |
| 29 | 6000 | 4520 | 8430 | 6920 | 1620 | 2000 | 4100 | 6130 | 9110 | 4130 | 2660 | 1020 |
| 30 | 13400 | 4660 | 10200 | 5660 | --- | 1890 | 5500 | 5530 | 8240 | 3850 | 2480 | 987 |
| 31 | 7730 | --- | 6800 | 4740 | --- | 2050 | --- | 4730 | --- | 3820 | 2350 | --- |
| TOTAL | 102376 | 231680 | 392860 | 183890 | 86110 | 57510 | 104320 | 247780 | 214250 | 198890 | 96330 | 45737 |
| MEAN | 3302 | 7723 | 12670 | 5932 | 2969 | 1855 | 3477 | 7993 | 7142 | 6416 | 3107 | 1525 |
| MAX | 13400 | 17800 | 64500 | 16700 | 4800 | 3960 | 6250 | 13100 | 12800 | 11200 | 5480 | 2910 |
| MIN | 675 | 2960 | 2200 | 2800 | 1620 | 1160 | 1650 | 4730 | 3470 | 3820 | 2230 | 987 |
| CFSM | 6.17 | 14.4 | 23.7 | 11.1 | 5.55 | 3.47 | 6.50 | 14.9 | 13.3 | 12.0 | 5.81 | 2.85 |
| IN. | 7.12 | 16.11 | 27.32 | 12.79 | 5.99 | 4.00 | 7.25 | 17.23 | 14.90 | 13.83 | 6.70 | 3.18 |
| AC-FT | 203100 | 459500 | 779200 | 364700 | 170800 | 114100 | 206900 | 491500 | 425000 | 394500 | 191100 | 90720 |

CAL YR 1975 TOTAL 1853092 MEAN 5077 MAX 64500 MIN 675 CFSM 9.49 IN 128.85 AC-FT 3676000
WTR YR 1976 TOTAL 1961733 MEAN 5360 MAX 64500 MIN 675 CFSM 10.0 IN 136.40 AC-FT 3891000

## 12135000 WALLACE RIVER AT GOLD BAR, WA

LOCATION.--Lat 47°51'50", long 121°41'47", in NW¼NE¼ sec.6, T.27 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on right bank 30 ft (9 m) downstream from highway bridge, 0.5 mi (0.8 km) north of Gold Bar, 1.3 mi (2.1 km) upstream from Olney Creek, and at mile 5.8 (9.3 km).

DRAINAGE AREA.--19.0 mi² (49.2 km²).

PERIOD OF RECORD.--October 1928 to September 1933, July 1946 to September 1976 (discontinued). Monthly discharge only for some periods, published in WSP 1316. Water temperatures July 1955 to September 1972.

REVISED RECORDS.--WSP 1316: 1930(M), 1932-33(M). WSP 1932: Drainage area. WRD Wash. 1974: 1971-73(P).

GAGE.--Water-stage recorder. Datum of gage is 174.08 ft (53.060 m) above mean sea level. December 1928 to Sept. 30, 1933, nonrecording gage 50 ft (15 m) upstream at different datum. July 25, 1946, to Sept. 19, 1958, water-stage recorder on left bank at present site and datum.

REMARKS.--Records good. Flow affected by some natural storage in Wallace Lake. No diversion above station.

AVERAGE DISCHARGE.--35 years, 165 ft³/s (4.673 m³/s), 117.93 in/yr (2,995 mm/yr) 119,500 acre-ft/yr (147 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,400 ft ³/s (96.3 m³/s ) Jan. 5, 1969, gage height, 8.37 ft (2.551 m); minimum, 5.8 ft³/s (0.16 m³/s) Aug. 25, 29, 30, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,420 ft³/s (40.2 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 2 | 1900 | 1,680 | 47.6 | 7.99 | 2.435 | Dec. 8 | 0700 | 1,650 | 46.7 | 7.94 | 2.420 |
| Nov. 24 | 1300 | *1,700 | 48.1 | *8.03 | 2.448 | Dec. 26 | 1400 | 1,420 | 40.2 | 7.49 | 2.283 |
| Dec. 2 | 2400 | 1,690 | 47.9 | 8.02 | 2.444 | Jan. 15 | 1700 | 1,660 | 47.0 | 7.95 | 2.423 |

Minimum discharge, 16 ft³/s, (0.45 m³/s) Oct. 2, 3, gage height 3.00 ft (0.914 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17 | 470 | 1530 | 143 | 149 | 64 | 97 | 447 | 161 | 252 | 65 | 64 |
| 2 | 16 | 967 | 1610 | 119 | 135 | 60 | 88 | 739 | 155 | 217 | 60 | 57 |
| 3 | 24 | 608 | 1500 | 110 | 119 | 56 | 86 | 420 | 135 | 195 | 60 | 53 |
| 4 | 51 | 312 | 1120 | 405 | 102 | 53 | 95 | 309 | 125 | 238 | 54 | 48 |
| 5 | 83 | 230 | 441 | 327 | 88 | 51 | 133 | 351 | 133 | 215 | 53 | 95 |
| 6 | 75 | 205 | 272 | 190 | 83 | 50 | 202 | 287 | 167 | 225 | 53 | 161 |
| 7 | 37 | 208 | 232 | 153 | 77 | 50 | 182 | 309 | 195 | 210 | 84 | 110 |
| 8 | 38 | 178 | 1150 | 163 | 76 | 48 | 366 | 423 | 217 | 354 | 76 | 76 |
| 9 | 41 | 146 | 530 | 141 | 72 | 48 | 327 | 423 | 217 | 207 | 65 | 62 |
| 10 | 67 | 124 | 348 | 135 | 67 | 60 | 297 | 429 | 225 | 165 | 59 | 56 |
| 11 | 44 | 109 | 230 | 149 | 69 | 69 | 345 | 432 | 177 | 151 | 56 | 53 |
| 12 | 35 | 99 | 169 | 115 | 315 | 59 | 247 | 282 | 240 | 139 | 53 | 57 |
| 13 | 35 | 100 | 141 | 101 | 157 | 56 | 182 | 315 | 182 | 125 | 50 | 51 |
| 14 | 63 | 619 | 119 | 171 | 131 | 53 | 161 | 257 | 145 | 129 | 48 | 72 |
| 15 | 343 | 698 | 149 | 1470 | 113 | 51 | 159 | 227 | 342 | 143 | 54 | 70 |
| 16 | 140 | 296 | 119 | 1210 | 212 | 51 | 133 | 297 | 791 | 155 | 139 | 56 |
| 17 | 309 | 211 | 102 | 583 | 190 | 99 | 125 | 292 | 396 | 137 | 84 | 50 |
| 18 | 443 | 163 | 99 | 414 | 147 | 169 | 127 | 187 | 390 | 111 | 70 | 47 |
| 19 | 288 | 137 | 99 | 270 | 125 | 129 | 121 | 180 | 342 | 101 | 101 | 45 |
| 20 | 251 | 118 | 92 | 215 | 110 | 111 | 232 | 222 | 250 | 101 | 267 | 41 |
| 21 | 200 | 103 | 83 | 182 | 97 | 111 | 180 | 192 | 222 | 90 | 111 | 38 |
| 22 | 172 | 96 | 83 | 182 | 90 | 123 | 153 | 197 | 205 | 77 | 84 | 37 |
| 23 | 137 | 793 | 101 | 210 | 90 | 115 | 135 | 167 | 185 | 88 | 72 | 37 |
| 24 | 111 | 1370 | 567 | 159 | 88 | 145 | 171 | 175 | 255 | 99 | 65 | 37 |
| 25 | 172 | 562 | 275 | 137 | 83 | 149 | 167 | 262 | 235 | 90 | 117 | 34 |
| 26 | 177 | 710 | 822 | 121 | 76 | 127 | 147 | 255 | 173 | 86 | 205 | 31 |
| 27 | 165 | 413 | 348 | 651 | 74 | 110 | 143 | 429 | 167 | 70 | 113 | 30 |
| 28 | 164 | 268 | 220 | 267 | 70 | 104 | 180 | 275 | 215 | 69 | 99 | 29 |
| 29 | 415 | 198 | 502 | 227 | 69 | 95 | 238 | 195 | 227 | 74 | 86 | 28 |
| 30 | 742 | 436 | 330 | 175 | --- | 93 | 327 | 210 | 173 | 65 | 77 | 26 |
| 31 | 335 | --- | 190 | 153 | --- | 110 | --- | 161 | --- | 64 | 69 | --- |
| TOTAL | 5190 | 10947 | 13573 | 9048 | 3274 | 2669 | 5546 | 9346 | 7042 | 4442 | 2649 | 1651 |
| MEAN | 167 | 365 | 438 | 292 | 113 | 86.1 | 185 | 301 | 235 | 143 | 85.5 | 55.0 |
| MAX | 742 | 1370 | 1610 | 1470 | 315 | 169 | 366 | 739 | 791 | 354 | 267 | 161 |
| MIN | 16 | 96 | 83 | 101 | 67 | 48 | 86 | 161 | 125 | 64 | 48 | 26 |
| CFSM | 8.79 | 19.2 | 23.1 | 15.4 | 5.95 | 4.53 | 9.74 | 15.8 | 12.4 | 7.53 | 4.50 | 2.89 |
| IN. | 10.16 | 21.43 | 26.57 | 17.71 | 6.41 | 5.23 | 10.86 | 18.30 | 13.79 | 8.70 | 5.19 | 3.23 |
| AC-FT | 10290 | 21710 | 26920 | 17950 | 6490 | 5290 | 11000 | 18540 | 13970 | 8810 | 5250 | 3270 |

CAL YR 1975 TOTAL 71625 MEAN 196 MAX 1610 MIN 16 CFSM 10.3 IN 140.23 AC-FT 142100
WTR YR 1976 TOTAL 75377 MEAN 206 MAX 1610 MIN 16 CFSM 10.8 IN 147.57 AC-FT 149500

## 12137300 SPADA LAKE NEAR STARTUP, WA

LOCATION.--Lat 47°58'28", long 121°41'10", in NW¼ sec.29, T.29 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, Snoqualmie National Forest, on right bank at Culmback Dam on Sultan River, 1.7 mi (2.7 km) downstream from South Fork, 7.8 mi (12.6 km) north of Startup and at mile 16.5 (26.5 km).

DRAINAGE AREA.--68.3 $mi^2$ (176.9 $km^2$).

PERIOD OF RECORD.--April 1965 to current year.

GAGE.--Nonrecording gage. Datum of gage is at mean sea level (levels by Snohomish County P.U.D. No. 1).

REMARKS.--Reservoir is formed by earth-fill dam completed to elevation 1,408 ft (429.16 m) in 1965; storage began Apr. 5, 1965. Capacity, 34,500 acre-ft (42.5 $hm^3$) between elevations 1,250 ft (381.0 m) and 1,360 ft (414.5 m), crest of spillway. No dead storage. Figures given herein represent total contents. Spada Lake is used to regulate the flow of the Sultan River to supplement city of Everett water supply

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 40,470 acre-ft (49.9 $hm^3$) Dec. 2, 1975, elevation, 1,367.3 ft (416.75 m); minimum observed since reservoir was first filled, 4,250 acre-ft (5.24 $hm^3$) Sept. 30, 1967, elevation, 1,301.28 ft (396.630 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 40,470 acre-ft (49.9 $hm^3$) Dec. 2, elevation, 1,367.3 ft (416.75 m); minimum observed, 23,360 acre-ft (28.8 $hm^3$) Oct. 3, elevation, 1,344.6 ft (409.83 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 1,347.0 | 24,900 | - |
| Oct. 31 | 1,361.6 | 35,780 | +10,880 |
| Nov. 30 | 1,363.8 | 37,540 | +1,760 |
| Dec. 31 | 1,360.1 | 34,580 | -2,960 |
| CAL YR 1975 | - | - | +160 |
| Jan. 31 | 1,360.4 | 34,820 | +240 |
| Feb. 29 | 1,355.2 | 30,660 | -4,160 |
| Mar. 31 | 1,358.3 | 33,140 | +2,480 |
| Apr. 30 | 1,361.4 | 35,620 | +2,480 |
| May 31 | 1,360.7 | 35,060 | -560 |
| June 30 | 1,360.9 | 35,220 | +160 |
| July 31 | 1,360.3 | 34,740 | -480 |
| Aug. 31 | 1,360.0 | 34,500 | -240 |
| Sept. 30 | 1,351.2 | 27,840 | -6,660 |
| WTR YR 1976 | - | - | +2,940 |

## 12138150 SULTAN RIVER BELOW CHAPLAIN CREEK NEAR SULTAN, WA

LOCATION.--Lat 47°54'52", long 121°48'36", in NE¼SW¼ sec.17, T.28 N., R.8 E., Snohomish County, Hydrologic Unit 17110009, on right bank, 0.8 mi (1.3 km) downstream from Chaplain Creek, 3.5 mi (5.6 km) north of Sultan, at river mi 5.1 (8.2 km).

DRAINAGE AREA.--92.6 mi² (239.8 km²).

PERIOD OF RECORD.--November 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 320 ft (98 m) from topographic map.

REMARKS.--Records good. City of Everett diverrs about 127 ft³/s (3.60 m³/s) daily into Lake Chaplain for municipal use. Flow regulated at Spada Lake since Apr. 5, 1966.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,600 ft³/s (697 m³/s) Dec. 2, 1975, gage height, 13.19 ft (4.020 m); minimum, 54 ft³/s (1.53 m³/s) Nov. 2, 3, 1974, gage height, 2.43 ft (0.741 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,600 ft³/s (697 m³/s) Dec. 2, gage height, 13.19 ft (4.020 m); minimum, 206 ft³/s (5.83 m³/s) Sept. 23, 24, gage height, 2.98 ft (0.908 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 238 | 2240 | 6780 | 1030 | 953 | 400 | 375 | 1640 | 680 | 869 | 278 | 344 |
| 2 | 236 | 5010 | 17100 | 881 | 848 | 400 | 365 | 2540 | 656 | 918 | 282 | 330 |
| 3 | 233 | 4600 | 13900 | 830 | 764 | 410 | 370 | 1940 | 614 | 834 | 291 | 322 |
| 4 | 281 | 2260 | 11000 | 1970 | 674 | 380 | 365 | 1330 | 518 | 897 | 270 | 322 |
| 5 | 277 | 1360 | 3130 | 2440 | 662 | 340 | 430 | 1240 | 482 | 976 | 241 | 385 |
| 6 | 302 | 1260 | 1720 | 1400 | 650 | 317 | 584 | 1180 | 518 | 1000 | 237 | 477 |
| 7 | 264 | 1400 | 1360 | 954 | 650 | 308 | 650 | 1180 | 626 | 1060 | 287 | 759 |
| 8 | 257 | 1260 | 3420 | 970 | 632 | 299 | 1390 | 1640 | 757 | 1630 | 420 | 539 |
| 9 | 251 | 857 | 2720 | 950 | 626 | 291 | 1670 | 1860 | 785 | 1340 | 365 | 390 |
| 10 | 264 | 507 | 2140 | 886 | 608 | 336 | 1220 | 1930 | 855 | 911 | 313 | 326 |
| 11 | 263 | 356 | 1880 | 1160 | 548 | 365 | 1510 | 2160 | 799 | 757 | 274 | 320 |
| 12 | 259 | 354 | 1820 | 889 | 976 | 331 | 1210 | 1520 | 904 | 680 | 245 | 318 |
| 13 | 308 | 334 | 1800 | 732 | 946 | 322 | 890 | 1350 | 1070 | 608 | 228 | 318 |
| 14 | 319 | 2750 | 1310 | 1300 | 694 | 308 | 757 | 1300 | 757 | 542 | 221 | 396 |
| 15 | 457 | 4540 | 922 | 7400 | 687 | 295 | 841 | 1090 | 883 | 566 | 234 | 397 |
| 16 | 427 | 2140 | 885 | 5630 | 1440 | 287 | 626 | 1180 | 2520 | 668 | 419 | 325 |
| 17 | 796 | 1060 | 827 | 2980 | 1510 | 322 | 572 | 1390 | 1750 | 729 | 518 | 314 |
| 18 | 3130 | 674 | 840 | 2350 | 1100 | 512 | 608 | 1010 | 1450 | 656 | 364 | 317 |
| 19 | 1400 | 501 | 974 | 1560 | 736 | 530 | 500 | 820 | 1450 | 554 | 318 | 313 |
| 20 | 2680 | 375 | 1710 | 1040 | 572 | 360 | 1190 | 799 | 1220 | 494 | 1260 | 315 |
| 21 | 1400 | 340 | 1220 | 743 | 468 | 360 | 960 | 778 | 1030 | 464 | 987 | 322 |
| 22 | 1030 | 407 | 753 | 862 | 370 | 460 | 614 | 799 | 939 | 350 | 557 | 309 |
| 23 | 735 | 2200 | 688 | 1220 | 360 | 560 | 464 | 729 | 890 | 322 | 375 | 250 |
| 24 | 500 | 6430 | 889 | 968 | 340 | 690 | 680 | 715 | 855 | 410 | 286 | 247 |
| 25 | 569 | 2640 | 759 | 764 | 326 | 820 | 792 | 1260 | 1090 | 435 | 360 | 310 |
| 26 | 1250 | 2790 | 2620 | 701 | 316 | 620 | 596 | 1040 | 946 | 430 | 953 | 288 |
| 27 | 1110 | 1870 | 3620 | 3660 | 308 | 590 | 452 | 1590 | 799 | 380 | 787 | 288 |
| 28 | 984 | 934 | 2220 | 2450 | 322 | 494 | 518 | 1590 | 771 | 313 | 566 | 293 |
| 29 | 2010 | 618 | 2130 | 1720 | 360 | 385 | 778 | 1030 | 976 | 309 | 415 | 287 |
| 30 | 5150 | 926 | 2910 | 1430 | --- | 350 | 1190 | 890 | 897 | 299 | 350 | 274 |
| 31 | 2190 | --- | 1770 | 1150 | --- | 385 | --- | 743 | --- | 274 | 332 | --- |
| TOTAL | 30054 | 52903 | 95817 | 53290 | 19468 | 12827 | 23167 | 40263 | 28487 | 20675 | 13033 | 10395 |
| MEAN | 969 | 1766 | 3091 | 1719 | 671 | 414 | 772 | 1299 | 950 | 667 | 420 | 347 |
| MAX | 5150 | 6430 | 17100 | 7400 | 1510 | 820 | 1670 | 2540 | 2520 | 1630 | 1260 | 759 |
| MIN | 233 | 334 | 688 | 701 | 308 | 287 | 365 | 715 | 482 | 274 | 221 | 247 |
| AC-FT | 59610 | 105100 | 190100 | 105700 | 38610 | 25440 | 45950 | 79860 | 56500 | 41010 | 25850 | 20620 |

CAL YR 1975 TOTAL 353083 MEAN 967 MAX 17100 MIN 71 AC-FT 700300
WTR YR 1976 TOTAL 400469 MEAN 1094 MAX 17100 MIN 221 AC-FT 794300

## 12141300 MIDDLE FORK SNOQUALMIE RIVER NEAR TANNER, WA

LOCATION.--Lat 47°29'10", long 121°38'48", in SW¼SE¼ sec.10, T.23 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.7 mi (1.1 km) downstream from Granite Creek, 6.4 mi (10.3 km) east of North Bend, and at mile 55.6 (89.5 km).

DRAINAGE AREA.--154 mi² (399 km²).

PERIOD OF RECORD.--February 1961 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Altitude of gage is 780 ft (238 m), from topographic map.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--15 years, 1,332 ft³/s (37.72 m³/s) 117.46 in/yr (2,983 mm/yr), 965,000 acre-ft/yr (1,190 hm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 ft³/s (705 m³/s) Jan. 18, 1975, gage height, 13.67 ft (4.167 m); minimum, 130 ft³/s (3.68 m³/s) Oct. 25, 26, 27, 1974, gage height, 1.04 ft (0.317 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 23, 1959, reached a stage of 18.7 ft (5.70 m), from floodmarks, discharge, 49,000 ft³/s (1,390 m³/s) by slope-area measurement at site 6 miles (9.7 km) downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,000 ft³/s (227 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 24 | 1200 | 12,800 | 362 | 10.05 | 3.063 | Dec. 26 | 1200 | 8,690 | 246 | 8.58 | 2.615 |
| Dec. 3 | a 0300 | *23,700 | 671 | *13.37 | 4.075 | Jan. 15 | 1600 | 14,500 | 411 | 10.62 | 3.237 |
| Dec. 8 | unknown | unknown | --- | unknown | --- | Jan. 27 | 0700 | 9,260 | 262 | 8.80 | 2.682 |

a Recorded prior to recorder malfunction.

Minimum discharge, 139 ft³/s (3.94 m³/s) Oct. 2, 3, gage height, 1.39 ft (0.424 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 202 | 2370 | 15600 | 1410 | 1260 | 516 | 636 | 2420 | 1040 | 1820 | 835 | 616 |
| 2 | 197 | 3650 | 19400 | 1110 | 1180 | 468 | 560 | 4120 | 930 | 1750 | 800 | 588 |
| 3 | 250 | 4100 | 17000 | 1000 | 1060 | 436 | 548 | 2610 | 845 | 1690 | 830 | 540 |
| 4 | 483 | 3110 | 10000 | 2210 | 920 | 402 | 628 | 2100 | 810 | 1840 | 775 | 540 |
| 5 | 479 | 2270 | 4600 | 2680 | 795 | 393 | 855 | 2010 | 810 | 1860 | 730 | 600 |
| 6 | 725 | 1870 | 2450 | 1580 | 745 | 387 | 1290 | 1740 | 996 | 2120 | 735 | 1000 |
| 7 | 450 | 1790 | 2000 | 1280 | 700 | 384 | 1160 | 1930 | 1240 | 2210 | 1220 | 750 |
| 8 | 443 | 1520 | 7500 | 1510 | 656 | 378 | 1810 | 2770 | 1560 | 2920 | 1080 | 640 |
| 9 | 468 | 1270 | 4400 | 1310 | 628 | 387 | 1840 | 3300 | 1690 | 2140 | 835 | 580 |
| 10 | 702 | 1060 | 2400 | 1310 | 592 | 488 | 1630 | 3540 | 1880 | 1640 | 740 | 540 |
| 11 | 491 | 926 | 1500 | 1870 | 604 | 596 | 1970 | 2600 | 1580 | 1460 | 735 | 510 |
| 12 | 394 | 835 | 1250 | 1260 | 1710 | 508 | 1560 | 1930 | 1750 | 1430 | 730 | 500 |
| 13 | 352 | 825 | 1100 | 980 | 1270 | 468 | 1250 | 2210 | 1600 | 1300 | 695 | 520 |
| 14 | 343 | 4170 | 1010 | 1730 | 1030 | 432 | 1090 | 2050 | 1250 | 1310 | 640 | 490 |
| 15 | 1070 | 5060 | 1450 | 11100 | 910 | 414 | 1020 | 1800 | 1890 | 1430 | 644 | 500 |
| 16 | 810 | 2510 | 1170 | 8220 | 1290 | 414 | 865 | 2140 | 5260 | 1680 | 885 | 450 |
| 17 | 1120 | 1680 | 926 | 4400 | 1280 | 596 | 790 | 2350 | 3020 | 1730 | 780 | 420 |
| 18 | 2450 | 1230 | 845 | 3050 | 1190 | 910 | 800 | 1640 | 2980 | 1510 | 690 | 410 |
| 19 | 2710 | 1030 | 805 | 2020 | 945 | 855 | 785 | 1470 | 3000 | 1270 | 632 | 390 |
| 20 | 2030 | 885 | 752 | 1560 | 850 | 735 | 1400 | 1280 | 2340 | 1230 | 2320 | 385 |
| 21 | 1430 | 790 | 684 | 1310 | 745 | 685 | 1180 | 1260 | 2130 | 1120 | 1320 | 370 |
| 22 | 1430 | 775 | 671 | 1290 | 680 | 680 | 972 | 1430 | 1890 | 972 | 920 | 360 |
| 23 | 1170 | 3840 | 815 | 1300 | 685 | 690 | 850 | 1480 | 1570 | 1010 | 765 | 350 |
| 24 | 920 | 8530 | 2330 | 1090 | 720 | 1020 | 1030 | 1360 | 1490 | 1220 | 675 | 350 |
| 25 | 1330 | 3820 | 2210 | 950 | 710 | 990 | 1010 | 1560 | 1920 | 1200 | 925 | 340 |
| 26 | 1450 | 4900 | 6750 | 895 | 644 | 800 | 870 | 1380 | 1530 | 1090 | 1430 | 330 |
| 27 | 1160 | 2820 | 3620 | 5870 | 616 | 730 | 835 | 2170 | 1410 | 996 | 1010 | 320 |
| 28 | 1130 | 1760 | 2050 | 2770 | 608 | 745 | 966 | 1830 | 1680 | 870 | 840 | 310 |
| 29 | 3550 | 1280 | 3210 | 2070 | 556 | 648 | 1180 | 1370 | 2190 | 875 | 755 | 300 |
| 30 | 5500 | 1640 | 3430 | 1590 | --- | 616 | 1660 | 1350 | 1840 | 830 | 700 | 290 |
| 31 | 2680 | --- | 1970 | 1340 | --- | 735 | --- | 1120 | --- | 820 | 648 | --- |
| TOTAL | 37919 | 72316 | 123898 | 72065 | 25579 | 18506 | 33040 | 62320 | 54121 | 45343 | 27319 | 14289 |
| MEAN | 1223 | 2411 | 3997 | 2325 | 882 | 597 | 1101 | 2010 | 1804 | 1463 | 881 | 476 |
| MAX | 5500 | 8530 | 19400 | 11100 | 1710 | 1020 | 1970 | 4120 | 5260 | 2920 | 2320 | 1000 |
| MIN | 197 | 775 | 671 | 895 | 556 | 378 | 548 | 1120 | 810 | 820 | 632 | 290 |
| CFSM | 7.94 | 15.7 | 26.0 | 15.1 | 5.73 | 3.88 | 7.15 | 13.1 | 11.7 | 9.50 | 5.72 | 3.09 |
| IN. | 9.16 | 17.47 | 29.93 | 17.41 | 6.18 | 4.47 | 7.98 | 15.05 | 13.07 | 10.95 | 6.60 | 3.45 |
| AC-FT | 75210 | 143400 | 245800 | 142900 | 50740 | 36710 | 65530 | 123600 | 107300 | 89940 | 54190 | 28340 |

CAL YR 1975 TOTAL 601682 MEAN 1648 MAX 19400 MIN 197 CFSM 10.7 IN 145.34 AC-FT 1193000
WTR YR 1976 TOTAL 586715 MEAN 1603 MAX 19400 MIN 197 CFSM 10.4 IN 141.73 AC-FT 1164000

NOTE.--No gage-height record Dec. 3 to 13.

## 12142000 NORTH FORK SNOQUALMIE RIVER NEAR SNOQUALMIE FALLS, WA

LOCATION.--Lat 47°36'54", long 121°42'44", in NW¼NW¼ sec.31, T.25 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.6 mi (1.0 km) upstream from Calligan Creek, 7.0 mi (11.3 km) northeast of town of Snoqualmie Falls, and at mile 9.2 (14.8 km).

DRAINAGE AREA.--64.0 mi² (165.8 km²).

PERIOD OF RECORD.--August 1929 to October 1949, water years 1950-60 (annual maximum), February 1961 to current year.

REVISED RECORDS.--WSP 1346: 1930-31(M), 1932, 1935, 1936-37(M), 1938, 1939-42(M), 1944, 1945-46(P), 1947, 1948(P), 1949(M). WSP 1736: 1932-34(M), 1935, 1938(M), 1943-45(M), 1947(M), drainage area. WSP 1932: 1950-54(M), 1956-57(M), 1959(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,130 ft (344 m), from topographic map. Prior to Oct. 19, 1949, water-stage recorder, and October 1949 to February 1951, crest-stage gage, at site 1,500 ft (460 m) downstream at different datum.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--35 years (1929-49, 1961-76), 510 ft³/s (14.44 m³/s) 108.22 in/yr (2,749 mm/yr), 369,500 acre-ft/yr (456 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,800 ft³/s (447 m³/s) Feb. 26, 1932, gage height, 17.5 ft (5.33 m), site and datum then in use, from rating curve extended above 2,200 ft³/s (62.3 m³/s) on basis of slope-area measurement at gage height 16.47 ft (5.020 m); minimum observed, 30 ft³/s (0.85 m³/s) Sept. 17-19, 1929.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 24 | 1300 | 5,610 | 159 | 8.88 | 2.707 | Jan. 15 | 1800 | 6,050 | 171 | 9.14 | 2.786 |
| Dec. 3 | 0300 | *10,200 | 289 | *11.30 | 3.444 | Jan. 27 | 0800 | 5,210 | 148 | 8.63 | 2.630 |
| Dec. 8 | 1100 | 4,480 | 127 | 8.14 | 2.481 | | | | | | |

Minimum discharge, 66 ft³/s (1.87 m³/s) Oct. 2, 3, gage height, 2.11 ft (0.643 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 69 | 1220 | 4350 | 542 | 466 | 201 | 277 | 1180 | 396 | 681 | 241 | 190 |
| 2 | 67 | 1670 | 7400 | 444 | 429 | 183 | 243 | 1700 | 365 | 601 | 228 | 176 |
| 3 | 75 | 1660 | 6900 | 399 | 383 | 176 | 235 | 1100 | 330 | 584 | 234 | 163 |
| 4 | 156 | 1040 | 4300 | 1380 | 327 | 163 | 266 | 900 | 303 | 698 | 214 | 153 |
| 5 | 201 | 766 | 1450 | 1340 | 278 | 162 | 374 | 840 | 303 | 668 | 204 | 190 |
| 6 | 345 | 662 | 872 | 677 | 264 | 160 | 611 | 720 | 386 | 741 | 221 | 471 |
| 7 | 189 | 643 | 756 | 539 | 252 | 158 | 513 | 740 | 472 | 724 | 515 | 292 |
| 8 | 169 | 540 | 2980 | 742 | 239 | 156 | 845 | 1210 | 565 | 1250 | 426 | 219 |
| 9 | 182 | 450 | 1500 | 598 | 229 | 156 | 809 | 1270 | 565 | 786 | 311 | 185 |
| 10 | 308 | 378 | 968 | 525 | 217 | 185 | 683 | 1320 | 615 | 570 | 261 | 166 |
| 11 | 202 | 330 | 670 | 761 | 216 | 217 | 839 | 996 | 512 | 512 | 231 | 154 |
| 12 | 161 | 304 | 525 | 513 | 797 | 191 | 603 | 713 | 680 | 502 | 212 | 159 |
| 13 | 145 | 300 | 457 | 408 | 559 | 189 | 472 | 905 | 601 | 442 | 199 | 163 |
| 14 | 144 | 1800 | 389 | 832 | 429 | 178 | 409 | 752 | 456 | 442 | 202 | 157 |
| 15 | 684 | 2100 | 613 | 4870 | 363 | 173 | 390 | 642 | 680 | 495 | 214 | 164 |
| 16 | 367 | 920 | 509 | 3310 | 518 | 171 | 322 | 794 | 1900 | 570 | 342 | 153 |
| 17 | 654 | 611 | 402 | 1660 | 559 | 256 | 301 | 833 | 1100 | 541 | 329 | 143 |
| 18 | 1250 | 465 | 372 | 1260 | 465 | 488 | 328 | 555 | 1080 | 448 | 291 | 139 |
| 19 | 1110 | 384 | 364 | 804 | 354 | 409 | 312 | 523 | 1100 | 374 | 262 | 130 |
| 20 | 743 | 327 | 345 | 619 | 313 | 304 | 624 | 469 | 840 | 377 | 1200 | 121 |
| 21 | 507 | 300 | 309 | 531 | 277 | 263 | 529 | 470 | 760 | 324 | 499 | 113 |
| 22 | 499 | 291 | 303 | 530 | 262 | 269 | 437 | 551 | 680 | 284 | 335 | 111 |
| 23 | 412 | 1660 | 371 | 583 | 267 | 277 | 368 | 496 | 510 | 310 | 269 | 110 |
| 24 | 334 | 3390 | 1480 | 458 | 284 | 383 | 479 | 481 | 530 | 380 | 236 | 110 |
| 25 | 474 | 1410 | 1110 | 391 | 273 | 429 | 492 | 653 | 740 | 342 | 330 | 104 |
| 26 | 655 | 2020 | 2810 | 349 | 245 | 313 | 396 | 522 | 536 | 330 | 607 | 99 |
| 27 | 488 | 1150 | 1340 | 2850 | 232 | 273 | 368 | 913 | 479 | 269 | 379 | 94 |
| 28 | 458 | 722 | 781 | 1090 | 228 | 265 | 453 | 660 | 589 | 249 | 310 | 91 |
| 29 | 1420 | 530 | 1450 | 794 | 213 | 243 | 573 | 487 | 713 | 263 | 264 | 89 |
| 30 | 2450 | 734 | 1410 | 587 | --- | 246 | 845 | 535 | 570 | 238 | 233 | 86 |
| 31 | 1150 | --- | 751 | 490 | --- | 323 | --- | 416 | --- | 227 | 209 | --- |
| TOTAL | 16068 | 28847 | 48237 | 30876 | 9938 | 7560 | 14396 | 24346 | 19356 | 15222 | 10008 | 4695 |
| MEAN | 518 | 962 | 1556 | 996 | 343 | 244 | 480 | 785 | 645 | 491 | 323 | 157 |
| MAX | 2450 | 3390 | 7400 | 4870 | 797 | 488 | 845 | 1700 | 1900 | 1250 | 1200 | 471 |
| MIN | 67 | 291 | 303 | 349 | 213 | 156 | 235 | 416 | 303 | 227 | 199 | 86 |
| CFSM | 8.09 | 15.0 | 24.3 | 15.6 | 5.36 | 3.81 | 7.50 | 12.3 | 10.1 | 7.67 | 5.05 | 2.45 |
| IN. | 9.34 | 16.77 | 28.04 | 17.95 | 5.78 | 4.39 | 8.37 | 14.15 | 11.25 | 8.85 | 5.82 | 2.73 |
| AC-FT | 31870 | 57220 | 95680 | 61240 | 19710 | 15000 | 28550 | 48290 | 38390 | 30190 | 19850 | 9310 |

CAL YR 1975 TOTAL 237969 MEAN 652 MAX 7400 MIN 67 CFSM 10.2 IN 138.32 AC-FT 472000
WTR YR 1976 TOTAL 229549 MEAN 627 MAX 7400 MIN 67 CFSM 9.80 IN 133.42 AC-FT 455300

## 12143400 SOUTH FORK SNOQUALMIE RIVER ABOVE ALICE CREEK, NEAR GARCIA, WA

LOCATION.--Lat 47°24'55", long 121°35'10", in SW¼SW¼ sec.6, T.22 N., R.10 E., King County, Hydrologic Unit 17110010, Snoqualmie National Forest, on left bank 0.4 mi (0.6 km) upstream from Alice Creek, 1.5 mi (2.4 km) southeast of Garcia, 11 mi (17.7 km) southeast of North Bend, and at mile 17.3 (27.8 km).

DRAINAGE AREA.--41.6 mi$^2$ (107.7 km$^2$).

PERIOD OF RECORD.--October 1960 to current year. Chemical analyses October to November 1971.

GAGE.--Water-stage recorder. Datum of gage is 1,447.67 ft (441.250 m) above mean sea level (Washington Highway Department bench mark).

REMARKS.--Records fair except those during period when the gage heights were affected by groundwater entering well, Dec. 9 to Mar. 18, which are poor. No regulation or diversion above station.

AVERAGE DISCHARGE.--16 years, 317 ft$^3$/s (8.977 m$^3$/s), 103.48 in/yr (2,628 mm/yr), 229,700 acre-ft/yr (283 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,090 ft$^3$/s (201 m$^3$/s) Nov. 19, 1962, gage height, 11.96 ft (3.645 m); minimum, 25 ft$^3$/s (0.71 m$^3$/s) Oct. 25, 26, 27, 1974, gage height, 0.99 ft (0.302 m); minimum gage height, 0.74 ft (0.226 m) Sept. 30, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in November and December 1959 reached stages of 14.7 ft (4.48 m) and 13.4 ft (4.08 m) respectively, from flood marks, discharges not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft$^3$/s (42.5 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Nov. 24 | 1300 | 2,290 | 64.9 | 4.90 | 1.494 |
| Dec. 2 | 0300 | *6,190 | 175 | *7.47 | 2.277 |
| Dec. 8 | 1300 | 1,860 | 52.7 | 3.83 | 1.167 |
| Dec. 26 | 1800 | 1,830 | 51.8 | 3.80 | 1.158 |
| Dec. 29 | 2100 | 1,670 | 47.3 | 3.62 | 1.103 |
| Jan. 15 | 2000 | 3,140 | 88.9 | 5.03 | 1.533 |
| Jan. 27 | 0800 | 1,970 | 55.8 | 4.14 | 1.262 |

Minimum discharge, 40 ft$^3$/s (1.13 m$^3$/s) Oct. 2, 3; minimum gage height, 0.74 ft (0.226 m) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 42 | 658 | 3090 | 390 | 349 | 120 | 170 | 828 | 331 | 445 | 167 | 92 |
| 2 | 41 | 971 | 5320 | 300 | 299 | 110 | 155 | 1220 | 299 | 430 | 158 | 86 |
| 3 | 52 | 1080 | 4910 | 230 | 267 | 103 | 158 | 856 | 287 | 430 | 155 | 82 |
| 4 | 98 | 846 | 3390 | 600 | 225 | 99 | 182 | 695 | 279 | 435 | 149 | 78 |
| 5 | 88 | 664 | 1570 | 530 | 210 | 98 | 234 | 642 | 295 | 460 | 143 | 86 |
| 6 | 108 | 535 | 1050 | 380 | 190 | 97 | 326 | 594 | 349 | 529 | 140 | 149 |
| 7 | 79 | 495 | 926 | 320 | 175 | 96 | 317 | 688 | 425 | 485 | 192 | 125 |
| 8 | 78 | 416 | 1570 | 350 | 165 | 95 | 558 | 989 | 534 | 618 | 170 | 102 |
| 9 | 89 | 349 | 1100 | 320 | 160 | 94 | 534 | 1120 | 576 | 445 | 140 | 90 |
| 10 | 115 | 293 | 750 | 300 | 155 | 120 | 534 | 1170 | 594 | 362 | 125 | 82 |
| 11 | 88 | 251 | 520 | 470 | 210 | 140 | 667 | 856 | 465 | 335 | 120 | 80 |
| 12 | 76 | 221 | 390 | 300 | 410 | 125 | 512 | 654 | 501 | 322 | 115 | 110 |
| 13 | 70 | 218 | 340 | 230 | 320 | 118 | 415 | 800 | 460 | 295 | 98 | 100 |
| 14 | 71 | 623 | 310 | 349 | 260 | 112 | 353 | 744 | 376 | 295 | 96 | 92 |
| 15 | 169 | 865 | 450 | 2040 | 240 | 110 | 308 | 667 | 534 | 304 | 110 | 92 |
| 16 | 123 | 590 | 310 | 1600 | 322 | 108 | 263 | 814 | 1230 | 335 | 134 | 86 |
| 17 | 186 | 425 | 260 | 1220 | 313 | 155 | 255 | 800 | 842 | 326 | 120 | 82 |
| 18 | 385 | 332 | 220 | 926 | 270 | 213 | 251 | 564 | 856 | 283 | 107 | 78 |
| 19 | 634 | 272 | 210 | 594 | 210 | 192 | 251 | 501 | 828 | 263 | 112 | 76 |
| 20 | 465 | 240 | 200 | 450 | 190 | 176 | 331 | 450 | 642 | 259 | 380 | 72 |
| 21 | 336 | 212 | 190 | 376 | 170 | 161 | 287 | 460 | 564 | 230 | 223 | 70 |
| 22 | 308 | 197 | 180 | 340 | 160 | 167 | 267 | 523 | 475 | 210 | 161 | 68 |
| 23 | 258 | 574 | 230 | 317 | 165 | 173 | 255 | 523 | 400 | 244 | 131 | 66 |
| 24 | 212 | 1470 | 430 | 271 | 180 | 241 | 275 | 485 | 385 | 248 | 117 | 64 |
| 25 | 265 | 911 | 680 | 227 | 155 | 241 | 271 | 518 | 475 | 248 | 149 | 62 |
| 26 | 300 | 1130 | 1380 | 220 | 145 | 209 | 263 | 480 | 395 | 241 | 128 | 58 |
| 27 | 258 | 772 | 1150 | 1220 | 140 | 188 | 259 | 702 | 380 | 220 | 117 | 57 |
| 28 | 258 | 530 | 765 | 779 | 130 | 179 | 283 | 558 | 480 | 195 | 112 | 57 |
| 29 | 664 | 380 | 960 | 582 | 125 | 167 | 362 | 445 | 570 | 188 | 105 | 55 |
| 30 | 957 | 394 | 1000 | 465 | --- | 167 | 523 | 430 | 475 | 176 | 98 | 54 |
| 31 | 676 | --- | 700 | 390 | --- | 185 | --- | 367 | --- | 173 | 94 | --- |
| TOTAL | 7549 | 16914 | 34551 | 17086 | 6310 | 4559 | 9819 | 21143 | 15302 | 10029 | 4366 | 2451 |
| MEAN | 244 | 564 | 1115 | 551 | 218 | 147 | 327 | 682 | 510 | 324 | 141 | 81.7 |
| MAX | 957 | 1470 | 5320 | 2040 | 410 | 241 | 667 | 1220 | 1230 | 618 | 380 | 149 |
| MIN | 41 | 197 | 180 | 220 | 125 | 94 | 155 | 367 | 279 | 173 | 94 | 54 |
| CFSM | 5.87 | 13.6 | 26.8 | 13.2 | 5.24 | 3.53 | 7.86 | 16.4 | 12.3 | 7.79 | 3.39 | 1.96 |
| IN. | 6.75 | 15.12 | 30.90 | 15.28 | 5.64 | 4.08 | 8.78 | 18.91 | 13.68 | 8.97 | 3.90 | 2.19 |
| AC-FT | 14970 | 33550 | 68530 | 33890 | 12520 | 9040 | 19480 | 41940 | 30350 | 19890 | 8660 | 4860 |

CAL YR 1975 TOTAL 146503 MEAN 401 MAX 5320 MIN 41 CFSM 9.64 IN 131.00 AC-FT 290600
WTR YR 1976 TOTAL 150079 MEAN 410 MAX 5320 MIN 41 CFSM 9.86 IN 134.20 AC-FT 297700

## 12143700 BOXLEY CREEK NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°25'58", long 121°45'04", in NE¼SW¼ sec.35, T.23 N., R.8 E., King County, Hydrologic Unit 17110012, on left bank 1.7 mi (2.7 km) northeast of Cedar Falls and 2.5 mi (4.0 km) upstream from mouth.

DRAINAGE AREA.--1.57 $mi^2$ (4.07 $km^2$).

PERIOD OF RECORD.--August 1945 to current year. Prior to October 1960 published in WSP 1932.

GAGE.--Water-stage recorder. Altitude of gage is 1,220 ft (372 m), from topographic map.

REMARKS.--Records good, except those for periods of no gage-height record and Dec. 7-21, which are poor. No regulation or diversion above station. Flow is mostly seepage from Chester Morse Lake.

AVERAGE DISCHARGE.--31 years, 26.3 $ft^3/s$ (0.745 $m^3/s$) 19,050 acre-ft/yr (23.5 $hm^3/s$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 182 $ft^3/s$ (5.15 $m^3/s$) Dec. 22, 23, 1946; maximum gage height recorded, 2.68 ft (0.817 m) Dec. 6, 1975; no flow part or all of each day Oct. 28 to Nov. 9, 1966, Nov. 5-8, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 132 $ft^3/s$ (3.74 $m^3/s$) Dec. 8, maximum gage height, 2.68 ft (0.817 m) Dec. 6; minimum discharge, 2.8 $ft^3/s$ (0.079 $m^3/s$) Oct. 24, 25, 27, 28, gage height, 1.37 ft (0.418 m).

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.1 | 3.1 | 55 | 46 | 48 | 23 | 7.5 | 9.4 | 72 | 70 | 27 | 24 |
| 2 | 3.1 | 3.1 | 64 | 46 | 47 | 22 | 7.2 | 11 | 73 | 66 | 26 | 24 |
| 3 | 3.3 | 3.1 | 72 | 46 | 47 | 21 | 6.9 | 11 | 72 | 65 | 25 | 24 |
| 4 | 3.3 | 3.0 | 80 | 46 | 47 | 20 | 6.3 | 11 | 73 | 62 | 25 | 24 |
| 5 | 3.5 | 3.0 | 96 | 46 | 45 | 19 | 6.1 | 12 | 73 | 60 | 24 | 24 |
| 6 | 3.5 | 3.1 | 124 | 46 | 44 | 18 | 5.5 | 12 | 73 | 58 | 24 | 24 |
| 7 | 3.7 | 3.1 | 129 | 46 | 43 | 18 | 5.2 | 14 | 72 | 55 | 22 | 23 |
| 8 | 3.7 | 3.1 | 132 | 46 | 42 | 18 | 5.2 | 15 | 70 | 52 | 23 | 22 |
| 9 | 3.7 | 3.3 | 129 | 46 | 42 | 17 | 5.0 | 17 | 72 | 50 | 22 | 22 |
| 10 | 3.7 | 3.5 | 127 | 46 | 40 | 17 | 5.0 | 18 | 72 | 48 | 23 | 21 |
| 11 | 3.7 | 3.7 | 122 | 46 | 39 | 17 | 5.0 | 22 | 70 | 47 | 25 | 20 |
| 12 | 3.7 | 4.1 | 118 | 46 | 37 | 15 | 5.0 | 28 | 72 | 45 | 24 | 20 |
| 13 | 3.5 | 4.7 | 112 | 46 | 36 | 15 | 4.7 | 31 | 72 | 44 | 23 | 19 |
| 14 | 3.5 | 5.8 | 105 | 46 | 35 | 14 | 4.7 | 38 | 72 | 43 | 21 | 18 |
| 15 | 3.5 | 7.2 | 100 | 47 | 34 | 14 | 4.7 | 49 | 73 | 42 | 21 | 17 |
| 16 | 3.5 | 8.0 | 93 | 47 | 34 | 13 | 4.7 | 55 | 75 | 41 | 21 | 16 |
| 17 | 3.5 | 8.7 | 88 | 47 | 33 | 13 | 4.7 | 60 | 75 | 39 | 22 | 15 |
| 18 | 3.3 | 11 | 83 | 46 | 33 | 12 | 4.7 | 64 | 73 | 38 | 23 | 15 |
| 19 | 3.3 | 13 | 77 | 47 | 31 | 12 | 4.7 | 70 | 73 | 37 | 25 | 14 |
| 20 | 3.1 | 14 | 74 | 48 | 29 | 11 | 5.0 | 72 | 72 | 37 | 28 | 11 |
| 21 | 3.1 | 17 | 70 | 49 | 29 | 11 | 5.5 | 72 | 72 | 36 | 28 | 11 |
| 22 | 3.0 | 20 | 66 | 50 | 28 | 10 | 5.5 | 69 | 75 | 35 | 28 | 10 |
| 23 | 3.0 | 23 | 63 | 51 | 28 | 9.4 | 5.8 | 67 | 75 | 34 | 28 | 10 |
| 24 | 2.8 | 27 | 59 | 53 | 27 | 10 | 6.1 | 70 | 76 | 33 | 27 | 9.4 |
| 25 | 3.0 | 31 | 55 | 54 | 27 | 9.0 | 6.3 | 70 | 76 | 32 | 26 | 8.6 |
| 26 | 3.0 | 35 | 55 | 54 | 26 | 8.3 | 6.9 | 72 | 76 | 32 | 25 | 8.0 |
| 27 | 2.8 | 37 | 51 | 53 | 26 | 8.3 | 7.5 | 73 | 78 | 31 | 24 | 7.2 |
| 28 | 2.8 | 40 | 49 | 51 | 24 | 8.0 | 7.7 | 73 | 78 | 30 | 23 | 7.0 |
| 29 | 3.3 | 42 | 48 | 50 | 24 | 7.7 | 8.0 | 73 | 78 | 30 | 22 | 6.6 |
| 30 | 3.5 | 49 | 47 | 48 | --- | 7.7 | 8.7 | 72 | 75 | 29 | 21 | 6.4 |
| 31 | 3.3 | --- | 46 | 48 | --- | 7.7 | --- | 72 | --- | 28 | 23 | --- |
| TOTAL | 102.8 | 432.6 | 2589 | 1487 | 1025 | 426.1 | 175.8 | 1402.4 | 2208 | 1349 | 749 | 481.2 |
| MEAN | 3.32 | 14.4 | 83.5 | 48.0 | 35.3 | 13.7 | 5.86 | 45.2 | 73.6 | 43.5 | 24.2 | 16.0 |
| MAX | 3.7 | 49 | 132 | 54 | 48 | 23 | 8.7 | 73 | 78 | 70 | 28 | 24 |
| MIN | 2.8 | 3.0 | 46 | 46 | 24 | 7.7 | 4.7 | 9.4 | 70 | 28 | 21 | 6.4 |
| AC-FT | 204 | 858 | 5140 | 2950 | 2030 | 845 | 349 | 2780 | 4380 | 2680 | 1490 | 954 |

CAL YR 1975 TOTAL 11265.0 MEAN 30.9 MAX 132 MIN 2.6 AC-FT 22340
WTR YR 1976 TOTAL 12427.9 MEAN 34.0 MAX 132 MIN 2.8 AC-FT 24650

NOTE.--No gage-height record Jan. 26 to Mar. 22 and Aug. 10 to Sept. 30.

## 12143800 RATTLESNAKE LAKE AT CEDAR FALLS, WA

LOCATION.--Lat 47°25'39", long 121°46'29", in SW¼SW¼ sec.34, T.23 N., R.8 E., King County, Hydrologic Unit 17110012, on southeast shore and 0.6 mi (1.0 km) northeast of Cedar Falls.

DRAINAGE AREA.--1.86 mi² (4.82 km²).

PERIOD OF RECORD.--November to December 1945 (fragmentary), January 1953 to current year. Extremes prior to October 1960 published in WSP 1932 and daily gage heights are available in the district office.

GAGE.--Nonrecording gage. Datum of gage is 7.25 ft (2.210 m) above mean sea level (levels by city of Seattle).

REMARKS.--No diversion or regulation.

COOPERATION.--Gage readings furnished by city of Seattle.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 911.80 ft (277.917 m) Nov. 25, 26, 1959; minimum observed, 852.80 ft (259.933 m) Jan. 9, 1953, but may have been less during periods Dec. 13, 1965, to Jan. 3, 1966, and Nov. 10 to Dec. 23, 1970, when water was below gage.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 909.77 ft (277.298 m) Dec. 7, 9; minimum observed, 889.32 ft (271.065 m) Oct. 25.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 891.96 | 891.00 | 901.50 | 908.40 | 907.96 | 906.84 | 904.04 | 898.60 | 905.36 | 907.38 | 905.54 | 904.60 |
| 2 | 891.72 | 891.44 | 903.42 | 908.28 | 907.94 | 906.66 | 903.88 | 898.58 | 905.56 | 907.38 | 905.48 | 904.54 |
| 3 | 891.58 | 891.69 | 906.20 | 908.16 | 907.90 | 906.66 | 903.66 | 898.62 | 905.70 | 907.36 | 905.44 | 904.48 |
| 4 | 891.42 | 891.85 | 908.40 | 908.14 | 907.84 | 906.56 | 903.46 | 898.60 | 905.82 | 907.32 | 905.40 | 904.46 |
| 5 | 891.22 | 891.90 | 909.40 | 908.12 | 907.78 | 906.44 | 903.20 | 898.66 | 905.90 | 907.28 | 905.38 | 904.54 |
| 6 | 891.12 | 891.92 | 909.72 | 908.16 | 907.72 | 906.30 | 902.98 | 898.70 | 906.04 | 907.22 | 905.32 | 904.78 |
| 7 | 890.94 | 891.94 | 909.77 | 908.14 | 907.70 | 906.18 | 902.72 | 898.70 | 906.14 | 907.20 | 905.36 | 904.87 |
| 8 | 890.82 | 891.96 | 909.76 | 908.18 | 907.67 | 906.10 | 902.48 | 898.77 | 906.20 | 907.26 | 905.39 | 904.93 |
| 9 | 890.70 | 891.96 | 909.77 | 908.18 | 907.58 | 905.98 | 902.22 | 898.80 | 906.28 | 907.18 | 905.32 | 904.92 |
| 10 | 890.58 | 891.95 | 909.76 | 908.16 | 907.48 | 905.90 | 901.98 | 898.90 | 906.32 | 907.08 | 905.28 | 904.98 |
| 11 | 890.46 | 891.97 | 909.73 | 908.18 | 907.40 | 905.88 | 901.74 | 899.00 | 906.38 | 907.00 | 905.24 | 904.96 |
| 12 | 890.34 | 891.97 | 909.68 | 908.20 | 907.46 | 905.80 | 901.46 | 899.18 | 906.40 | 906.88 | 905.20 | 904.98 |
| 13 | 890.23 | 891.98 | 909.68 | 908.18 | 907.42 | 905.70 | 901.18 | 899.46 | 906.45 | 906.78 | 905.16 | 904.96 |
| 14 | 890.10 | 892.16 | 909.52 | 908.24 | 907.38 | 905.64 | 900.91 | 899.76 | 906.48 | 906.66 | 905.14 | 904.93 |
| 15 | 890.02 | 892.36 | 909.46 | 908.48 | 907.32 | 905.52 | 900.70 | 900.04 | 906.50 | 906.54 | 905.18 | 904.90 |
| 16 | 889.90 | 892.66 | 909.38 | 909.08 | 907.36 | 905.44 | 900.44 | 900.32 | 906.68 | 906.46 | 905.18 | 904.80 |
| 17 | 889.82 | 893.00 | 909.30 | 909.46 | 907.36 | 905.34 | 900.18 | 900.72 | 906.72 | 906.36 | 905.14 | 904.70 |
| 18 | 889.80 | 893.42 | 909.10 | 909.48 | 907.46 | 905.30 | 899.96 | 901.06 | 906.78 | 906.32 | 905.10 | 904.56 |
| 19 | 889.72 | 893.70 | 909.00 | 909.28 | 907.48 | 905.22 | 899.72 | 901.42 | 906.86 | 906.30 | 905.05 | 904.40 |
| 20 | 889.70 | 894.22 | 908.90 | 909.10 | 907.48 | 905.08 | 899.62 | 901.76 | 906.96 | 906.28 | 905.10 | 904.20 |
| 21 | 889.68 | 894.58 | 908.70 | 908.89 | 907.44 | 904.97 | 899.48 | 902.10 | 907.04 | 906.28 | 905.08 | 904.04 |
| 22 | 889.56 | 894.60 | 908.62 | 908.72 | 907.32 | 904.86 | 899.34 | 902.38 | 907.10 | 906.22 | 905.04 | 903.82 |
| 23 | 889.48 | 895.50 | 908.50 | 908.52 | 907.24 | 904.74 | 899.26 | 902.76 | 907.18 | 906.14 | 905.02 | 903.60 |
| 24 | 889.40 | 896.02 | 908.42 | 908.30 | 907.16 | 904.76 | 899.20 | 903.12 | 907.22 | 906.04 | 904.96 | 903.38 |
| 25 | 889.32 | 896.60 | 908.29 | 908.17 | 907.12 | 904.70 | 899.10 | 903.44 | 907.34 | 905.96 | 904.96 | 903.16 |
| 26 | 889.44 | 897.30 | 908.38 | 908.08 | 907.04 | 904.66 | 899.02 | 903.78 | 907.36 | 905.88 | 904.90 | 902.88 |
| 27 | 889.46 | 898.10 | 908.45 | 908.14 | 906.98 | 904.54 | 898.94 | 904.08 | 907.36 | 905.82 | 904.86 | 902.64 |
| 28 | 889.47 | 898.94 | 908.48 | 908.10 | 906.94 | 904.52 | 898.86 | 904.38 | 907.36 | 905.72 | 904.82 | 902.36 |
| 29 | 889.60 | 899.78 | 908.43 | 908.06 | 906.88 | 904.42 | 898.76 | 904.64 | 907.38 | 905.68 | 904.76 | 902.10 |
| 30 | 889.92 | 900.58 | 908.48 | 908.02 | --- | 904.32 | 898.68 | 904.94 | 907.38 | 905.64 | 904.71 | 901.80 |
| 31 | 890.42 | --- | 908.46 | 908.00 | --- | 904.18 | --- | 905.14 | --- | 905.58 | 904.64 | --- |
| MEAN | 890.25 | 893.90 | 908.54 | 908.41 | 907.44 | 905.46 | 900.91 | 900.98 | 906.61 | 906.55 | 905.13 | 904.14 |
| MAX | 891.96 | 900.58 | 909.77 | 909.48 | 907.96 | 906.84 | 904.04 | 905.14 | 907.38 | 907.38 | 905.54 | 904.98 |
| MIN | 889.32 | 891.00 | 901.50 | 908.00 | 906.88 | 904.18 | 898.68 | 898.58 | 905.36 | 905.58 | 904.64 | 901.80 |

CAL YR 1975 MEAN 900.86 MAX 909.77 MIN 877.70

WTR YR 1976 MEAN 903.19 MAX 909.77 MIN 889.32

## 12144500 SNOQUALMIE RIVER NEAR SNOQUALMIE, WA

LOCATION.--Lat 47°32'43", long 121°50'28", in SW¼SW¼ sec.19, T.24 N., R.8 E., King County, Hydrologic Unit 17110010, on left bank 0.3 mi (0.5 km) downstream from Snoqualmie Falls, 0.4 mi (0.6 km) upstream from Tokul Creek, 1.5 mi (2.4 km) northwest of Snoqualmie, and at mile 40.0 (64.4 km).

DRAINAGE AREA.--375 mi$^2$ (971 km$^2$).

PERIOD OF RECORD.--May 1898 to July 1899; August to September 1899 (monthly discharge only); January to July 1900, September 1902 to July 1904; August to September 1904 (monthly discharge only); October 1904 to September 1905 and November to December 1906 (gage heights only); August 1907 to May 1926 (monthly discharge only); June 1926 to September 1927; October 1927 to September 1932 (monthly discharge only); August 1958 to current year. Published as "near Snoqualmie Falls" 1904-06.

GAGE.--Water-stage recorder. Altitude of gage is 120 ft (36.6 m), from river-profile map. Prior to Nov. 3, 1902, and Nov. 1, to Dec. 31, 1906, nonrecording gages above and below Snoqualmie Falls at different datum. Nov. 3, 1902, to Sept. 30, 1905, nonrecording gage at site 4 mi (6.4 km) upstream and 300 ft (91 m) downstream from South Fork, at different datum.

REMARKS.--Records good. Medium and low flows affected by powerplant 0.1 mi (0.2 km) above station. No regulation..

AVERAGE DISCHARGE.--46 years (1898-99, 1902-04, 1907-32, 1958-76), 2,623 ft$^3$/s (74.3 m$^3$/s), 1,900,000 acre-ft/yr (2,340 hm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,000 ft$^3$/s (1,730 m$^3$/s) Nov. 23, 1959, gage height, 19.78 ft (6.029 m); minimum, 9.7 ft$^3$/s (0.27 m$^3$/s) Aug. 14, 27, 1958, gage height, -0.53 ft (-0.162 m); minimum daily, 88 ft$^3$/s (2.49 m$^3$/s) Aug. 8, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 51,800 ft$^3$/s (1,470 m$^3$/s) Dec. 3, gage height, 18.57 ft (5.660 m); minimum, 425 ft$^3$/s (12.04 m$^3$/s) Oct. 3, gage height, 2.94 ft (0.896 m); minimum daily, 502 ft$^3$/s (14.2 m$^3$/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 513 | 5430 | 19400 | 3740 | 3070 | 1520 | 1680 | 5250 | 2380 | 3660 | 1570 | 1270 |
| 2 | 502 | 6780 | 42200 | 3060 | 2900 | 1390 | 1560 | 8050 | 2180 | 3550 | 1500 | 1190 |
| 3 | 561 | 8050 | 43700 | 2750 | 2630 | 1330 | 1490 | 5950 | 2030 | 3310 | 1520 | 1120 |
| 4 | 876 | 6240 | 30400 | 4540 | 2360 | 1240 | 1610 | 4770 | 1910 | 3630 | 1450 | 1030 |
| 5 | 857 | 4720 | 10500 | 6270 | 2080 | 1190 | 1970 | 4680 | 1880 | 3630 | 1380 | 1090 |
| 6 | 1490 | 4090 | 6350 | 4060 | 1960 | 1170 | 2910 | 4140 | 2150 | 4020 | 1400 | 2120 |
| 7 | 964 | 3980 | 5430 | 3360 | 1850 | 1150 | 2760 | 4260 | 2620 | 4200 | 2140 | 1670 |
| 8 | 920 | 3500 | 11400 | 3880 | 1770 | 1110 | 3870 | 5810 | 3150 | 5530 | 2240 | 1330 |
| 9 | 878 | 2960 | 8830 | 3520 | 1690 | 1130 | 4320 | 6630 | 3400 | 4420 | 1710 | 1150 |
| 10 | 1390 | 2510 | 6150 | 3280 | 1580 | 1260 | 3730 | 7070 | 3810 | 3420 | 1530 | 1030 |
| 11 | 1030 | 2200 | 4660 | 4540 | 1590 | 1540 | 4530 | 5670 | 3190 | 2950 | 1450 | 980 |
| 12 | 868 | 2000 | 3850 | 3490 | 3630 | 1350 | 3730 | 4260 | 3520 | 2840 | 1400 | 1080 |
| 13 | 793 | 1900 | 3340 | 2800 | 3160 | 1280 | 2940 | 4710 | 3490 | 2660 | 1340 | 1120 |
| 14 | 777 | 7030 | 2880 | 4080 | 2590 | 1200 | 2610 | 4530 | 2710 | 2600 | 1290 | 1060 |
| 15 | 2010 | 9240 | 3700 | 18100 | 2330 | 1160 | 2530 | 3910 | 3130 | 2720 | 1310 | 1080 |
| 16 | 1580 | 5600 | 3400 | 18900 | 3100 | 1150 | 2160 | 4410 | 9250 | 3060 | 1780 | 980 |
| 17 | 2220 | 4010 | 2790 | 9750 | 3280 | 1400 | 1980 | 5010 | 6130 | 3210 | 1690 | 929 |
| 18 | 4670 | 3060 | 2550 | 7570 | 3130 | 2210 | 2030 | 3640 | 5710 | 2810 | 1510 | 910 |
| 19 | 4620 | 2560 | 2420 | 5350 | 2530 | 2210 | 1950 | 3220 | 5790 | 2450 | 1350 | 873 |
| 20 | 4220 | 2220 | 2280 | 4270 | 2320 | 1860 | 3150 | 2800 | 4630 | 2330 | 4350 | 851 |
| 21 | 2890 | 1990 | 2110 | 3630 | 2050 | 1720 | 2930 | 2740 | 4210 | 2160 | 2790 | 834 |
| 22 | 3010 | 1900 | 2050 | 3420 | 1890 | 1700 | 2490 | 3070 | 3810 | 1930 | 1980 | 823 |
| 23 | 2530 | 5370 | 2180 | 3910 | 1860 | 1780 | 2210 | 3130 | 3180 | 1910 | 1650 | 809 |
| 24 | 2060 | 14500 | 4800 | 2930 | 1970 | 2560 | 2530 | 2850 | 2920 | 2210 | 1470 | 787 |
| 25 | 2510 | 8520 | 5020 | 2630 | 1980 | 2640 | 2600 | 3420 | 3990 | 2190 | 1710 | 751 |
| 26 | 3410 | 8880 | 11100 | 2410 | 1790 | 2140 | 2290 | 2880 | 3270 | 2050 | 2730 | 735 |
| 27 | 2660 | 6470 | 8050 | 10200 | 1780 | 1960 | 2120 | 4320 | 2880 | 1880 | 2100 | 717 |
| 28 | 2560 | 4370 | 4920 | 6410 | 1770 | 1950 | 2350 | 3990 | 3210 | 1680 | 1760 | 717 |
| 29 | 6060 | 3290 | 6370 | 4890 | 1630 | 1770 | 2720 | 2950 | 4210 | 1660 | 1570 | 701 |
| 30 | 11000 | 3440 | 7780 | 3960 | --- | 1650 | 3790 | 3000 | 3690 | 1590 | 1450 | 684 |
| 31 | 6500 | --- | 4870 | 3340 | --- | 1930 | --- | 2530 | --- | 1540 | 1340 | --- |
| TOTAL | 76929 | 146810 | 275480 | 164640 | 66270 | 49650 | 79540 | 133650 | 108430 | 87800 | 54460 | 30421 |
| MEAN | 2482 | 4894 | 8886 | 5311 | 2285 | 1602 | 2651 | 4311 | 3614 | 2832 | 1757 | 1014 |
| MAX | 11000 | 14500 | 43700 | 18900 | 3630 | 2640 | 4530 | 8050 | 9250 | 5530 | 4350 | 2120 |
| MIN | 502 | 1900 | 2050 | 2410 | 1580 | 1110 | 1490 | 2530 | 1880 | 1540 | 1290 | 684 |
| CFSM | 6.62 | 13.1 | 23.7 | 14.2 | 6.09 | 4.27 | 7.07 | 11.5 | 9.64 | 7.55 | 4.69 | 2.70 |
| IN. | 7.63 | 14.56 | 27.33 | 16.33 | 6.57 | 4.93 | 7.89 | 13.26 | 10.76 | 8.71 | 5.40 | 3.02 |
| AC-FT | 152600 | 291200 | 546400 | 326600 | 131400 | 98480 | 157800 | 265100 | 215100 | 174200 | 108000 | 60340 |

CAL YR 1975 TOTAL 1281187 MEAN 3510 MAX 43700 MIN 502 CFSM 9.36 IN 127.09 AC-FT 2541000
WTR YR 1976 TOTAL 1274080 MEAN 3481 MAX 43700 MIN 502 CFSM 9.28 IN 126.39 AC-FT 2527000

## 12145500 RAGING RIVER NEAR FALL CITY, WA

LOCATION.--Lat 47°32'24", long 121°54'28", on west line sec.27, T.24 N., R.7 E., King County, Hydrologic Unit 17110010, on right bank at highway bridge 2.0 mi (3.2 km) southwest of Fall City and 2.6 mi (4.2 km) upstream from mouth.

DRAINAGE AREA.--30.6 mi$^2$ (79.3 km$^2$).

PERIOD OF RECORD.--July 1945 to September 1950, water years 1951, and 1953-63 (annual maximum), December 1963 to June 1973, October 1973 to April 1974, October 1974 to current year.

REVISED RECORDS.--WSP 1316: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 250 ft (76 m), from topographic map. Prior to Oct. 1, 1950, water-stage recorder on left bank at present site and datum. August 1951 and January 1953 to February 1963, crest-stage gage only on left bank at present site and datum.

REMARKS.--Records good. Some small diversions for irrigation and domestic use above station. No regulation.

AVERAGE DISCHARGE.--15 years (water years 1946-50, 1965-72, 1975-76), 151 ft$^3$/s (4.276 m$^3$/s) 67.01 in/yr (1,702 mm/yr), 109,400 acre-ft/yr (135 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,420 ft$^3$/s (96.9 m$^3$/s) Feb. 9, 1951, gage height, 6.75 ft (2.060 m), from high-water mark in well, from rating curve extended above 1,700 ft$^3$/s (48.1 m$^3$/s) on basis of contracted- opening measurement of peak flow; minimum daily discharge, 4.4 ft$^3$/s (0.12 m$^3$/s) Aug. 21, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,300 ft$^3$/s (36.8 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m0 | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 3 | 0100 | *3,380 | 95.7 | *5.48 | 1.670 | Jan. 15 | 0800 | 1,970 | 55.8 | 4.69 | 1.430 |

Minimum discharge, 14 ft$^3$/s (0.40 m$^3$/s) Oct. 2, gage height, 0.64 ft (0.195 m).

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15 | 367 | 778 | 221 | 123 | 164 | 171 | 92 | 52 | 37 | 23 | 29 |
| 2 | 14 | 293 | 2060 | 180 | 108 | 136 | 146 | 144 | 48 | 38 | 22 | 28 |
| 3 | 22 | 250 | 2120 | 171 | 100 | 115 | 132 | 121 | 45 | 35 | 22 | 26 |
| 4 | 26 | 199 | 1300 | 377 | 89 | 100 | 125 | 107 | 40 | 36 | 23 | 25 |
| 5 | 42 | 161 | 580 | 414 | 80 | 91 | 128 | 157 | 37 | 37 | 23 | 52 |
| 6 | 47 | 170 | 365 | 319 | 75 | 84 | 142 | 134 | 35 | 33 | 23 | 180 |
| 7 | 31 | 240 | 405 | 295 | 71 | 82 | 128 | 114 | 33 | 31 | 80 | 102 |
| 8 | 35 | 305 | 565 | 397 | 67 | 78 | 140 | 100 | 31 | 91 | 100 | 71 |
| 9 | 35 | 266 | 385 | 340 | 64 | 77 | 128 | 88 | 31 | 65 | 50 | 54 |
| 10 | 41 | 201 | 302 | 369 | 60 | 138 | 115 | 81 | 29 | 53 | 35 | 45 |
| 11 | 31 | 160 | 232 | 472 | 73 | 157 | 144 | 77 | 28 | 45 | 29 | 40 |
| 12 | 27 | 137 | 190 | 358 | 275 | 132 | 123 | 71 | 29 | 41 | 25 | 40 |
| 13 | 25 | 144 | 164 | 265 | 208 | 117 | 107 | 65 | 34 | 38 | 25 | 38 |
| 14 | 25 | 381 | 142 | 764 | 218 | 108 | 119 | 60 | 32 | 35 | 35 | 51 |
| 15 | 44 | 478 | 361 | 1560 | 224 | 100 | 151 | 58 | 43 | 33 | 70 | 52 |
| 16 | 41 | 400 | 288 | 920 | 530 | 103 | 115 | 52 | 187 | 32 | 100 | 44 |
| 17 | 95 | 312 | 218 | 515 | 481 | 149 | 108 | 48 | 108 | 31 | 62 | 40 |
| 18 | 269 | 235 | 180 | 381 | 463 | 256 | 140 | 45 | 76 | 30 | 50 | 37 |
| 19 | 147 | 185 | 153 | 282 | 323 | 210 | 144 | 42 | 64 | 29 | 60 | 35 |
| 20 | 110 | 149 | 134 | 221 | 285 | 173 | 358 | 40 | 54 | 29 | 180 | 32 |
| 21 | 169 | 124 | 117 | 180 | 229 | 146 | 253 | 37 | 48 | 29 | 90 | 29 |
| 22 | 247 | 133 | 128 | 178 | 197 | 185 | 192 | 35 | 45 | 29 | 65 | 31 |
| 23 | 182 | 318 | 187 | 157 | 180 | 200 | 159 | 35 | 41 | 28 | 54 | 32 |
| 24 | 132 | 305 | 323 | 134 | 210 | 545 | 229 | 35 | 40 | 27 | 50 | 31 |
| 25 | 212 | 257 | 319 | 119 | 229 | 347 | 195 | 42 | 88 | 26 | 65 | 29 |
| 26 | 229 | 367 | 722 | 112 | 195 | 275 | 162 | 38 | 67 | 25 | 50 | 27 |
| 27 | 197 | 350 | 490 | 414 | 229 | 256 | 138 | 38 | 55 | 25 | 42 | 25 |
| 28 | 256 | 255 | 323 | 259 | 241 | 262 | 121 | 41 | 47 | 24 | 37 | 25 |
| 29 | 753 | 195 | 397 | 200 | 195 | 221 | 105 | 38 | 41 | 24 | 35 | 25 |
| 30 | 1050 | 472 | 409 | 164 | --- | 197 | 95 | 50 | 37 | 23 | 32 | 24 |
| 31 | 627 | --- | 288 | 142 | --- | 210 | --- | 47 | --- | 23 | 31 | --- |
| TOTAL | 5176 | 7809 | 14625 | 10880 | 5822 | 5414 | 4513 | 2132 | 1545 | 1082 | 1508 | 1299 |
| MEAN | 167 | 260 | 472 | 351 | 201 | 175 | 150 | 68.8 | 51.5 | 34.9 | 51.2 | 43.3 |
| MAX | 1050 | 478 | 2120 | 1560 | 530 | 545 | 358 | 157 | 187 | 91 | 180 | 180 |
| MIN | 14 | 124 | 117 | 112 | 60 | 77 | 95 | 35 | 28 | 23 | 22 | 24 |
| CFSM | 5.46 | 8.50 | 15.4 | 11.5 | 6.57 | 5.72 | 4.90 | 2.25 | 1.68 | 1.14 | 1.67 | 1.42 |
| IN. | 6.29 | 9.49 | 17.78 | 13.23 | 7.08 | 6.58 | 5.49 | 2.59 | 1.88 | 1.32 | 1.93 | 1.58 |
| AC-FT | 10270 | 15490 | 29010 | 21580 | 11550 | 10740 | 8950 | 4230 | 3060 | 2150 | 3150 | 2580 |

CAL YR 1975 TOTAL 64458 MEAN 177 MAX 2120 MIN 13 CFSM 5.78 IN 78.36 AC-FT 127900
WTR YR 1976 TOTAL 61885 MEAN 169 MAX 2120 MIN 14 CFSM 5.52 IN 75.23 AC-FT 122700

NOTE.--No gage-height record July 13 to Aug. 27.

## 12147500 NORTH FORK TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°42'45", long 121°47'15", in SW¼NE¼ sec.28, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 2.9 mi (4.7 km) upstream from confluence with South Fork, 7.4 mi (11.9 km) northeast of Carnation, and at mile 11.7 (18.8 km).

DRAINAGE AREA.--39.9 mi$^2$ (103.3 km$^2$).

PERIOD OF RECORD.--October 1952 to December 1963, November 1967 to current year.

REVISED RECORDS.--WSP 1566: 1957. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 600 ft (183 m), from river-profile map.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--19 years (1952-63, 1968-76), 380 ft$^3$/s (10.76 m$^3$/s), 131.64 in/yr (3,344 mm/yr) 275,300 acre-ft/yr (339 hm$^3$/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,560 ft$^3$/s (271 m$^3$/s) Dec. 15, 1959, gage height, 13.15 ft (4.008 m), from rating curve extended above 2,800 ft$^3$/s (79.3 m$^3$/s); minimum, 38 ft$^3$/s (1.08 m$^3$/s) Sept. 13, 14, 1958, but may have been less sometime during period of no gage-height record in October 1952; minimum gage height, 3.37 ft (1.027 m) Oct. 25, 26, 27, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft$^3$/s (85.0 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 24 | 1100 | 3,750 | 106 | 9.76 | 2.975 | Dec. 8 | 0900 | 3,930 | 111 | 9.78 | 2.981 |
| Dec. 2 | 0700 | *6,160 | 174 | *11.43 | 3.484 | Jan. 15 | 0700 | 4,690 | 133 | 10.40 | 3.170 |

Minimum discharge, 61 ft$^3$/s (1.73 m$^3$/s) Oct. 1, 2, 3, gage height, 3.55 ft (1.082 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 62 | 781 | 2150 | 434 | 414 | 241 | 273 | 785 | 300 | 394 | 139 | 141 |
| 2 | 61 | 964 | 4830 | 382 | 386 | 225 | 249 | 1130 | 285 | 335 | 134 | 134 |
| 3 | 79 | 772 | 3350 | 366 | 352 | 211 | 255 | 700 | 261 | 307 | 132 | 128 |
| 4 | 121 | 488 | 2220 | 1350 | 317 | 201 | 288 | 546 | 240 | 374 | 127 | 123 |
| 5 | 209 | 374 | 955 | 920 | 272 | 190 | 363 | 618 | 237 | 335 | 125 | 172 |
| 6 | 229 | 363 | 700 | 542 | 257 | 185 | 538 | 518 | 276 | 331 | 125 | 282 |
| 7 | 124 | 427 | 695 | 486 | 245 | 183 | 450 | 546 | 303 | 317 | 197 | 180 |
| 8 | 105 | 393 | 2380 | 710 | 233 | 178 | 660 | 725 | 324 | 574 | 205 | 150 |
| 9 | 111 | 330 | 1020 | 546 | 224 | 177 | 586 | 715 | 314 | 349 | 168 | 136 |
| 10 | 150 | 290 | 745 | 542 | 216 | 224 | 562 | 720 | 335 | 282 | 146 | 127 |
| 11 | 117 | 266 | 594 | 642 | 221 | 232 | 642 | 680 | 291 | 258 | 136 | 121 |
| 12 | 99 | 257 | 510 | 470 | 960 | 205 | 462 | 502 | 345 | 246 | 127 | 130 |
| 13 | 94 | 292 | 462 | 406 | 482 | 200 | 374 | 550 | 314 | 230 | 125 | 125 |
| 14 | 109 | 1320 | 422 | 980 | 386 | 190 | 342 | 458 | 264 | 227 | 127 | 148 |
| 15 | 403 | 1230 | 875 | 3810 | 331 | 186 | 328 | 426 | 566 | 237 | 162 | 143 |
| 16 | 256 | 539 | 542 | 1980 | 655 | 189 | 285 | 506 | 1220 | 246 | 252 | 127 |
| 17 | 514 | 390 | 450 | 1130 | 578 | 295 | 288 | 478 | 562 | 230 | 197 | 119 |
| 18 | 743 | 326 | 410 | 935 | 438 | 542 | 321 | 359 | 522 | 207 | 172 | 116 |
| 19 | 513 | 293 | 394 | 675 | 349 | 359 | 331 | 345 | 478 | 190 | 217 | 111 |
| 20 | 338 | 269 | 366 | 574 | 307 | 279 | 715 | 310 | 382 | 188 | 830 | 106 |
| 21 | 298 | 255 | 338 | 522 | 293 | 255 | 478 | 317 | 356 | 176 | 314 | 103 |
| 22 | 281 | 258 | 352 | 586 | 276 | 328 | 398 | 345 | 328 | 166 | 212 | 103 |
| 23 | 229 | 1610 | 462 | 634 | 279 | 288 | 345 | 314 | 307 | 166 | 178 | 103 |
| 24 | 194 | 2220 | 1330 | 486 | 287 | 418 | 522 | 335 | 386 | 180 | 162 | 100 |
| 25 | 363 | 791 | 770 | 430 | 278 | 378 | 442 | 394 | 470 | 168 | 237 | 96 |
| 26 | 393 | 1380 | 1860 | 398 | 256 | 294 | 382 | 338 | 328 | 166 | 294 | 93 |
| 27 | 345 | 725 | 835 | 1530 | 261 | 267 | 386 | 550 | 303 | 148 | 222 | 90 |
| 28 | 343 | 495 | 582 | 680 | 259 | 261 | 450 | 394 | 338 | 145 | 200 | 89 |
| 29 | 1060 | 395 | 1070 | 578 | 243 | 243 | 526 | 314 | 349 | 150 | 176 | 86 |
| 30 | 1500 | 865 | 825 | 478 | --- | 273 | 650 | 370 | 300 | 141 | 160 | 84 |
| 31 | 612 | --- | 526 | 426 | --- | 331 | --- | 300 | --- | 137 | 148 | --- |
| TOTAL | 10055 | 19358 | 33020 | 24628 | 10055 | 8028 | 12891 | 15588 | 11284 | 7600 | 6146 | 3766 |
| MEAN | 324 | 645 | 1065 | 794 | 347 | 259 | 430 | 503 | 376 | 245 | 198 | 126 |
| MAX | 1500 | 2220 | 4830 | 3810 | 960 | 542 | 715 | 1130 | 1220 | 574 | 830 | 282 |
| MIN | 61 | 255 | 338 | 366 | 216 | 177 | 249 | 300 | 237 | 137 | 125 | 84 |
| CFSM | 8.12 | 16.2 | 26.7 | 19.9 | 8.70 | 6.49 | 10.8 | 12.6 | 9.42 | 6.14 | 4.96 | 3.16 |
| IN. | 9.37 | 18.05 | 30.78 | 22.96 | 9.37 | 7.48 | 12.02 | 14.53 | 10.52 | 7.09 | 5.73 | 3.51 |
| AC-FT | 19940 | 38400 | 65500 | 48850 | 19940 | 15920 | 25570 | 30920 | 22380 | 15070 | 12190 | 7470 |

CAL YR 1975 TOTAL 156508 MEAN 429 MAX 4830 MIN 61 CFSM 10.8 IN 145.91 AC-FT 310400
WTR YR 1976 TOTAL 162419 MEAN 444 MAX 4830 MIN 61 CFSM 11.1 IN 151.42 AC-FT 322200

## 12147600 SOUTH FORK TOLT RIVER NEAR INDEX, WA

LOCATION.--Lat 47°42'25", long 121°35'56", in NE¼SW¼ sec.25, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.6 mi (1.0 km) upstream from Phelps Creek, 8.1 mi (13.0 km) south of Index, and mile 12.9 (20.8 km).

DRAINAGE AREA.--5.34 mi² (13.83 km²).

PERIOD OF RECORD.--December 1959 to December 1963, November 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,850 ft (564 m) from topographic map. Prior to Oct. 1, 1961, at datum 0.85 ft (0.259 m) higher.

REMARKS.--Records good except those for period of no gage-height record which are fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--11 years (water years 1961-63, 1969-76), 59.5 ft³/s (1.685 m³/s) 151.31 in/yr (3,843 mm/yr), 43,110 acre-ft/yr (53.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,880 ft³/s (53.2 m³/s) Nov. 19, 1962; maximum gage height, 7.13 ft (2.173 m), present datum, Dec. 14, 1959; minimum daily discharge, 2.3 ft³/s (0.065 m³/s) Aug. 28-30, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 550 ft³/s (15.6 m³/s) and maximum (*) from floodmarks:

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 24 | 1200 | 717 | 20.3 | 4.59 | 1.399 | Jan. 15 | unknown | unknown | | unknown | |
| Dec. 2 | unknown | *1,120 | 31.7 | *5.63 | 1.716 | Jan. 27 | 0400 | 705 | 20.0 | 4.55 | 1.387 |
| Dec. 8 | ---- | unknown | ----- | unknown | ---- | | | | | | |

Minimum discharge, 5.5 ft³/s (0.156 m³/s) Oct. 1, 2, gage height, 0.44 ft (0.134 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.5 | 196 | 669 | 35 | 42 | 13 | 20 | 143 | 47 | 81 | 23 | 19 |
| 2 | 5.5 | 230 | 950 | 30 | 39 | 12 | 20 | 208 | 42 | 67 | 22 | 16 |
| 3 | 10 | 232 | 550 | 29 | 34 | 12 | 27 | 113 | 37 | 62 | 22 | 14 |
| 4 | 24 | 120 | 350 | 240 | 28 | 11 | 36 | 83 | 35 | 80 | 20 | 13 |
| 5 | 55 | 72 | 150 | 110 | 25 | 10 | 64 | 109 | 36 | 74 | 20 | 21 |
| 6 | 46 | 62 | 90 | 65 | 22 | 10 | 79 | 83 | 48 | 80 | 20 | 57 |
| 7 | 23 | 65 | 72 | 38 | 21 | 10 | 65 | 94 | 60 | 78 | 49 | 30 |
| 8 | 18 | 49 | 420 | 82 | 20 | 10 | 101 | 145 | 71 | 139 | 46 | 22 |
| 9 | 23 | 39 | 120 | 42 | 17 | 12 | 88 | 147 | 73 | 80 | 37 | 17 |
| 10 | 29 | 41 | 70 | 41 | 16 | 22 | 87 | 150 | 80 | 57 | 30 | 14 |
| 11 | 20 | 27 | 54 | 66 | 24 | 21 | 97 | 121 | 68 | 51 | 25 | 14 |
| 12 | 16 | 26 | 45 | 38 | 160 | 17 | 63 | 85 | 92 | 49 | 22 | 17 |
| 13 | 17 | 36 | 39 | 30 | 62 | 14 | 47 | 106 | 74 | 44 | 20 | 15 |
| 14 | 38 | 264 | 36 | 31 | 42 | 12 | 39 | 86 | 56 | 43 | 21 | 17 |
| 15 | 126 | 246 | 68 | 370 | 34 | 12 | 34 | 75 | 110 | 49 | 20 | 16 |
| 16 | 81 | 77 | 41 | 170 | 82 | 18 | 28 | 100 | 276 | 54 | 40 | 14 |
| 17 | 133 | 47 | 33 | 110 | 58 | 55 | 29 | 100 | 123 | 50 | 43 | 14 |
| 18 | 174 | 35 | 31 | 85 | 37 | 72 | 29 | 64 | 115 | 42 | 35 | 12 |
| 19 | 172 | 29 | 29 | 66 | 27 | 37 | 32 | 58 | 109 | 35 | 28 | 11 |
| 20 | 79 | 25 | 28 | 53 | 23 | 26 | 69 | 51 | 82 | 35 | 125 | 10 |
| 21 | 56 | 23 | 27 | 46 | 20 | 22 | 43 | 55 | 72 | 31 | 60 | 10 |
| 22 | 47 | 23 | 28 | 43 | 20 | 29 | 37 | 62 | 70 | 28 | 36 | 10 |
| 23 | 36 | 232 | 34 | 40 | 25 | 23 | 31 | 56 | 64 | 30 | 28 | 10 |
| 24 | 30 | 447 | 200 | 37 | 23 | 32 | 55 | 64 | 74 | 36 | 24 | 9.4 |
| 25 | 82 | 126 | 110 | 30 | 20 | 24 | 42 | 83 | 106 | 32 | 33 | 8.4 |
| 26 | 67 | 270 | 350 | 47 | 17 | 19 | 34 | 68 | 68 | 32 | 57 | 7.9 |
| 27 | 47 | 94 | 150 | 374 | 15 | 17 | 37 | 118 | 56 | 26 | 37 | 7.7 |
| 28 | 51 | 50 | 90 | 103 | 14 | 15 | 50 | 83 | 66 | 24 | 31 | 7.4 |
| 29 | 206 | 37 | 160 | 71 | 12 | 13 | 70 | 57 | 80 | 26 | 27 | 6.9 |
| 30 | 364 | 122 | 80 | 52 | --- | 22 | 101 | 62 | 63 | 22 | 24 | 6.7 |
| 31 | 117 | --- | 45 | 44 | --- | 29 | --- | 49 | --- | 22 | 20 | --- |
| TOTAL | 2198.0 | 3392 | 5119 | 2627 | 979 | 651 | 1554 | 2878 | 2353 | 1559 | 1045 | 447.4 |
| MEAN | 70.9 | 113 | 165 | 84.7 | 33.8 | 21.0 | 51.8 | 92.8 | 78.4 | 50.3 | 33.7 | 14.9 |
| MAX | 364 | 447 | 950 | 374 | 160 | 72 | 101 | 208 | 276 | 139 | 125 | 57 |
| MIN | 5.5 | 23 | 27 | 29 | 12 | 10 | 20 | 49 | 35 | 22 | 20 | 6.7 |
| CFSM | 13.3 | 21.2 | 30.9 | 15.9 | 6.33 | 3.93 | 9.70 | 17.4 | 14.7 | 9.42 | 6.31 | 2.79 |
| IN. | 15.31 | 23.62 | 35.65 | 18.30 | 6.82 | 4.53 | 10.82 | 20.04 | 16.39 | 10.86 | 7.28 | 3.12 |
| AC-FT | 4360 | 6730 | 10150 | 5210 | 1940 | 1290 | 3080 | 5710 | 4670 | 3090 | 2070 | 887 |

CAL YR 1975 TOTAL 26133.6 MEAN 71.6 MAX 950 MIN 5.5 CFSM 13.4 IN 182.02 AC-FT 51840
WTR YR 1976 TOTAL 24802.4 MEAN 67.8 MAX 950 MIN 5.5 CFSM 12.7 IN 172.75 AC-FT 49200

NOTE.--No gage-height record Dec. 2 to Jan. 23.

## 12148000 SOUTH FORK TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°41'22", long 121°42'44", in SW¼SW¼ sec.31, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.1 mi (0.2 km) upstream from private road bridge, 9.8 mi (15.8 km) northeast of Carnation, and at mile 6.8 (10.9 km).

DRAINAGE AREA.--19.7 mi² (51.0 km²).

PERIOD OF RECORD.--October 1952 to December 1963, June 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,300 ft (396 m), from river-profile map.

REMARKS.--Records good. Regulation by South Fork Tolt Reservoir, capacity, 57,830 acre-ft (71.3 hm³) since Sept. 1963. During 1976 water year the Seattle Water Department diverted an average daily discharge of about 80 ft³/s (2.27 m³/s) above the station for municipal use.

AVERAGE DISCHARGE.--11 years (water years 1953-63), 198 ft³/s s(5.607 m³/s), 143,300 acre-ft/yr (177 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,500 ft³/s (184 m³/s) Dec. 15, 1959, gage height, 7.45 ft (2.271 m), from rating curve extended above 2,700 ft³/s (76.5 m³/s); maximum gage height, 7.62 ft (2.323 m) Nov. 20, 1958, backwater from debris; minimum discharge, 8.4 ft³/s (0.24 m³/s) Sept. 12, 1963, minimum gage height, 0.81 ft (0.247 m) Aug. 23-27, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 752 ft³/s (21.3 m³/s) Dec. 2, gage height, 4.02 ft (1.225 m); minimum daily, 24 ft³/s (0.680 m³/s) June 3; minimum gage height, 1.16 ft (0.354 m) Mar. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 92 | 668 | 250 | 205 | 98 | 63 | 54 | 60 | 54 | 59 | 37 | 31 |
| 2 | 90 | 668 | 485 | 205 | 98 | 61 | 60 | 69 | 39 | 69 | 38 | 30 |
| 3 | 88 | 668 | 704 | 205 | 105 | 61 | 61 | 69 | 24 | 71 | 38 | 30 |
| 4 | 81 | 669 | 692 | 222 | 96 | 60 | 60 | 64 | 38 | 84 | 38 | 32 |
| 5 | 84 | 662 | 670 | 212 | 95 | 60 | 60 | 67 | 36 | 95 | 38 | 35 |
| 6 | 80 | 609 | 660 | 210 | 95 | 60 | 75 | 64 | 37 | 93 | 39 | 36 |
| 7 | 79 | 418 | 660 | 210 | 95 | 60 | 78 | 61 | 39 | 95 | 36 | 33 |
| 8 | 79 | 199 | 675 | 218 | 95 | 60 | 87 | 61 | 38 | 141 | 37 | 42 |
| 9 | 80 | 198 | 645 | 210 | 93 | 60 | 85 | 59 | 39 | 151 | 32 | 34 |
| 10 | 79 | 305 | 645 | 212 | 82 | 64 | 81 | 58 | 38 | 127 | 31 | 38 |
| 11 | 79 | 405 | 645 | 212 | 67 | 63 | 82 | 56 | 38 | 105 | 29 | 40 |
| 12 | 79 | 252 | 640 | 210 | 75 | 60 | 76 | 48 | 41 | 90 | 29 | 39 |
| 13 | 79 | 89 | 635 | 207 | 67 | 61 | 79 | 49 | 43 | 65 | 28 | 42 |
| 14 | 81 | 225 | 635 | 263 | 67 | 60 | 71 | 53 | 41 | 44 | 28 | 44 |
| 15 | 82 | 120 | 645 | 620 | 67 | 60 | 54 | 54 | 55 | 35 | 29 | 46 |
| 16 | 81 | 111 | 635 | 660 | 75 | 60 | 55 | 55 | 58 | 33 | 28 | 42 |
| 17 | 88 | 333 | 630 | 640 | 207 | 64 | 61 | 54 | 37 | 33 | 28 | 37 |
| 18 | 94 | 562 | 620 | 635 | 215 | 69 | 64 | 52 | 36 | 33 | 29 | 36 |
| 19 | 87 | 387 | 615 | 630 | 65 | 64 | 63 | 53 | 35 | 34 | 34 | 35 |
| 20 | 84 | 102 | 615 | 625 | 65 | 63 | 87 | 51 | 36 | 35 | 35 | 37 |
| 21 | 87 | 102 | 610 | 615 | 64 | 61 | 69 | 54 | 37 | 35 | 28 | 38 |
| 22 | 86 | 105 | 352 | 615 | 64 | 64 | 64 | 59 | 37 | 36 | 28 | 39 |
| 23 | 84 | 139 | 105 | 440 | 64 | 58 | 63 | 60 | 36 | 36 | 28 | 39 |
| 24 | 83 | 140 | 111 | 103 | 65 | 64 | 79 | 46 | 39 | 36 | 29 | 36 |
| 25 | 91 | 365 | 109 | 102 | 65 | 58 | 58 | 41 | 59 | 36 | 34 | 34 |
| 26 | 89 | 656 | 170 | 102 | 64 | 48 | 45 | 55 | 61 | 33 | 32 | 34 |
| 27 | 90 | 687 | 210 | 400 | 64 | 54 | 42 | 46 | 49 | 33 | 33 | 44 |
| 28 | 95 | 687 | 207 | 605 | 63 | 58 | 47 | 49 | 42 | 35 | 33 | 56 |
| 29 | 116 | 693 | 212 | 328 | 63 | 55 | 54 | 52 | 43 | 36 | 33 | 55 |
| 30 | 274 | 555 | 210 | 102 | --- | 56 | 59 | 54 | 43 | 37 | 33 | 55 |
| 31 | 516 | --- | 207 | 100 | --- | 58 | --- | 54 | --- | 36 | 32 | --- |
| TOTAL | 3277 | 11779 | 14904 | 10323 | 2498 | 1867 | 1973 | 1727 | 1248 | 1881 | 1004 | 1167 |
| MEAN | 106 | 393 | 481 | 333 | 86.1 | 60.2 | 65.8 | 55.7 | 41.6 | 60.7 | 32.4 | 38.9 |
| MAX | 516 | 693 | 704 | 660 | 215 | 69 | 87 | 69 | 61 | 151 | 39 | 56 |
| MIN | 79 | 89 | 105 | 100 | 63 | 48 | 42 | 41 | 24 | 33 | 28 | 30 |
| AC-FT | 6500 | 23360 | 29560 | 20480 | 4950 | 3700 | 3910 | 3430 | 2480 | 3730 | 1990 | 2310 |

CAL YR 1975 TOTAL 57078 MEAN 156 MAX 704 MIN 39 AC-FT 113200
WTR YR 1976 TOTAL 53648 MEAN 147 MAX 704 MIN 24 AC-FT 106400

## 12148500 TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°41'45", long 121°49'22", in SE¼NE¼ sec.31, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 500 ft (152 m) downstream from the forks, 0.4 mi (0.6 km) upstream from Stossel Creek, 5.5 mi (8.8 km) northeast of Carnation, and at mile 8.7 (14.0 km).

DRAINAGE AREA.--81.4 mi² (210.8 km²).

PERIOD OF RECORD.--August 1928 to January 1932, September 1937 to current year. Prior to October 1951, published as "near Tolt." Chemical analyses July 1960 to September 1970.

REVISED RECORDS.--WSP 1286: 1929(M), 1930, 1938(M), 1939, 1943(M), 1945(M), 1945(M), 1951(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 348 ft (106.1 m) above mean sea level (river-profile survey). Prior to Oct. 31, 1928, nonrecording gage and Oct. 31, 1928, to Jan. 3, 1932, water-stage recorder, at site 350 ft (107 m) upstream at datum 7.1 ft (2.16 m) higher (river-profile survey). Sept. 1 to Oct. 6, 1937, nonrecording gage at present site at datum 1.64 ft (0.500 m) higher.

REMARKS.--Records good except those for period of no gage-height record which are fair. Some regulation by South Fork Reservoir, capacity, 57,830 acre-ft (71.3 hm³). During 1976 water year city of Seattle Water Department diverted an average daily discharge of about 80 ft³/s (2.27 m³/s) above station for municipal use.

AVERAGE DISCHARGE.--42 years (1928-31, 1937-76), 610 ft³/s (17.28 m³/s), 441,900 acre-ft/yr (545 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ft³/s (493 m³/s) Dec. 15, 1959, gage height, 13.04 ft (3.975 m), from rating curve extended above 7,600 ft³/s (215 m³/s) on basis of slope-area measurement at gage height, 12.92 ft (3.938 m); minimum, 53 ft³/s (1.50 m³/s) Sept. 22, 23, 1951, gage height, 3.84 ft (1.170 m).

EXTREMES FOR CURRENT YEAR.-- Peak discharges above base of 3,400 ft³/s (96.3 m³/s) and maximum (*) from peak stage indicator:

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 24 | 1100 | 4,630 | 131 | 9.19 | 2.801 | Dec. 8 | unknown | unknown | --- | unknown | --- |
| Nov. 26 | 0600 | 3,400 | 96.3 | 8.50 | 2.591 | Jan. 15 | 1200 | 6,900 | 195 | 10.22 | 3.115 |
| Dec. 2 | unknown | *8,560 | 242 | *10.82 | 3.298 | Jan. 27 | 0600 | 3,460 | 98.0 | 8.52 | 2.597 |

Minimum discharge, 146 ft³/s (4.135 m³/s) Sept. 26, 27, gage height, 4.40 ft (1.341 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 167 | 1660 | 3110 | 787 | 627 | 383 | 446 | 937 | 409 | 505 | 188 | 207 |
| 2 | 169 | 1820 | 6910 | 717 | 597 | 361 | 404 | 1340 | 384 | 471 | 181 | 200 |
| 3 | 183 | 1610 | 5150 | 695 | 554 | 342 | 398 | 904 | 341 | 414 | 181 | 190 |
| 4 | 217 | 1310 | 3640 | 2030 | 503 | 327 | 426 | 713 | 323 | 514 | 178 | 188 |
| 5 | 318 | 1170 | 1940 | 1440 | 462 | 313 | 498 | 796 | 314 | 485 | 176 | 230 |
| 6 | 366 | 1110 | 1590 | 941 | 442 | 306 | 684 | 691 | 347 | 464 | 181 | 398 |
| 7 | 225 | 1010 | 1580 | 876 | 426 | 303 | 602 | 705 | 375 | 447 | 267 | 270 |
| 8 | 202 | 738 | 3840 | 1150 | 409 | 297 | 800 | 870 | 396 | 771 | 296 | 246 |
| 9 | 207 | 680 | 2000 | 976 | 396 | 296 | 736 | 863 | 385 | 570 | 227 | 205 |
| 10 | 249 | 732 | 1640 | 951 | 374 | 362 | 699 | 866 | 407 | 458 | 215 | 192 |
| 11 | 215 | 814 | 1440 | 1070 | 366 | 372 | 805 | 836 | 362 | 385 | 190 | 188 |
| 12 | 195 | 665 | 1320 | 873 | 1100 | 332 | 615 | 639 | 417 | 351 | 178 | 200 |
| 13 | 192 | 510 | 1250 | 792 | 648 | 328 | 520 | 675 | 406 | 316 | 176 | 192 |
| 14 | 202 | 1740 | 1200 | 1440 | 553 | 313 | 475 | 590 | 336 | 299 | 178 | 220 |
| 15 | 545 | 1660 | 1810 | 5170 | 497 | 307 | 477 | 550 | 597 | 304 | 220 | 215 |
| 16 | 363 | 943 | 1360 | 3440 | 843 | 311 | 414 | 623 | 1380 | 310 | 328 | 190 |
| 17 | 680 | 978 | 1230 | 2220 | 912 | 450 | 415 | 601 | 693 | 297 | 264 | 181 |
| 18 | 1010 | 1130 | 1160 | 1910 | 851 | 703 | 472 | 469 | 629 | 269 | 232 | 176 |
| 19 | 705 | 894 | 1140 | 1570 | 562 | 537 | 470 | 450 | 574 | 250 | 261 | 172 |
| 20 | 530 | 520 | 1100 | 1410 | 505 | 442 | 940 | 406 | 473 | 247 | 985 | 165 |
| 21 | 480 | 475 | 1060 | 1320 | 459 | 403 | 733 | 405 | 439 | 248 | 455 | 159 |
| 22 | 480 | 475 | 820 | 1400 | 436 | 492 | 614 | 436 | 407 | 237 | 315 | 156 |
| 23 | 410 | 1950 | 719 | 1310 | 440 | 447 | 529 | 398 | 382 | 222 | 267 | 156 |
| 24 | 356 | 2810 | 1880 | 745 | 452 | 614 | 712 | 417 | 447 | 235 | 243 | 159 |
| 25 | 545 | 1480 | 1130 | 678 | 440 | 605 | 663 | 492 | 583 | 222 | 342 | 159 |
| 26 | 625 | 2430 | 2640 | 639 | 410 | 502 | 591 | 439 | 431 | 220 | 414 | 150 |
| 27 | 575 | 1810 | 1320 | 2130 | 417 | 455 | 562 | 655 | 389 | 205 | 328 | 152 |
| 28 | 605 | 1470 | 982 | 1490 | 413 | 475 | 609 | 513 | 412 | 197 | 302 | 161 |
| 29 | 1480 | 1290 | 1640 | 1110 | 391 | 446 | 677 | 421 | 426 | 200 | 267 | 159 |
| 30 | 2190 | 1770 | 1310 | 699 | --- | 461 | 809 | 490 | 372 | 200 | 243 | 156 |
| 31 | 1410 | --- | 908 | 644 | --- | 529 | --- | 408 | --- | 185 | 222 | --- |
| TOTAL | 16096 | 37654 | 58819 | 42623 | 15485 | 12814 | 17785 | 19599 | 13836 | 10498 | 8500 | 5792 |
| MEAN | 519 | 1255 | 1897 | 1375 | 534 | 413 | 593 | 632 | 461 | 339 | 274 | 193 |
| MAX | 2190 | 2810 | 6910 | 5170 | 1100 | 703 | 940 | 1340 | 1380 | 771 | 985 | 398 |
| MIN | 167 | 475 | 719 | 639 | 366 | 296 | 398 | 398 | 314 | 185 | 176 | 150 |
| AC-FT | 31930 | 74690 | 116700 | 84540 | 30710 | 25420 | 35280 | 38870 | 27440 | 20820 | 16860 | 11490 |

CAL YR 1975 TOTAL 254066 MEAN 696 MAX 6910 MIN 126 AC-FT 503900
WTR YR 1976 TOTAL 259500 MEAN 709 MAX 6910 MIN 150 AC-FT 514700

NOTE.--No gage-height record Dec. 1 to Jan. 5.

## 12149000 SNOQUALMIE RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°39'58", long 121°55'27", in NW¼SW¼ sec.9, T.25 N., R.7 E., King County, Hydrologic Unit 17110010, on left bank 40 ft (12 m) downstream from highway bridge, 1.3 mi (2.1 km) northwest of Carnation, 1.9 mi (3.1 km) downstream from Tolt River, and at mile 23.0 (37.0 km).

DRAINAGE AREA.--603 mi² (1,562 km²).

PERIOD OF RECORD.--October 1928 to current year. Prior to October 1951, published as "near Tolt." Chemical analyses November 1970 to September 1971, October 1972 to September 1974, water temperatures October 1966 to June 1969, sediment records October 1966 to June 1969.

REVISED RECORDS.--WSP 1316: 1932-33(M). WSP 1446: 1934(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level, unadjusted. Prior to Dec. 20, 1933, non-recording gage on old bridge, 100 ft (30 m) upstream and Dec. 20, 1933, to Sept. 30, 1939, water-stage recorder at present site, at datum 42.96 ft (13.094 m) higher.

REMARKS.--Records good. During 1976 city of Seattle Water Department diverted an average daily discharge of 80 ft³/s (2.27 m³/s) above station for municipal use. Several small diversions for irrigation and domestic use above. Low flow diverted for operation of powerplant at Snoqualmie Falls but returned to river above station. Some pondage at Snoqualmie Falls and some diurnal fluctuation caused by powerplant.

AVERAGE DISCHARGE.--48 years, 3,840 ft³/s (108.7 m³/s), 86.48 in/yr (2,197 mm/yr), 2,782,000 acre-ft/yr (3,430 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,500 ft³/s (1,690 m³/s) Feb. 27, 1932, elevation, 59.88 ft (18.251 m), from graph based on gage readings; maximum elevation observed, 59.93 ft (18.267 m) Nov. 13, 1932; minimum discharge, 239 ft³/s (6.77 m³/s) Aug. 21, 1945, but may have been less sometime during period of faulty intake action Sept. 13 or 14, 1949; minimum daily discharge, 396 ft³/s (11.2 m³/s) Sept. 24, 1938.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 16,000 ft³/s (453 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 30 | 1600 | 16,100 | 456 | 51.35 | 15.651 | Dec. 26 | 2400 | 17,500 | 496 | 52.01 | 15.853 |
| Nov. 25 | 0200 | 19,200 | 544 | 52.55 | 16.017 | Jan. 16 | 0900 | 31,300 | 886 | 56.32 | 17.166 |
| Dec. 3 | 1100 | *52,100 | 1,480 | *59.39 | 18.102 | Jan. 27 | 1800 | 16,400 | 464 | 51.59 | 15.725 |

Minimum discharge, 773 ft³/s (21.9 m³/s) Sept. 30, elevation, 44.51 ft (13.567 m); minimum gage height, 44.32 ft (13.509 ) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 888 | 8120 | 15100 | 5820 | 4520 | 2580 | 2860 | 6600 | 3080 | 4340 | 1700 | 1500 |
| 2 | 862 | 8650 | 42700 | 4960 | 4210 | 2280 | 2470 | 10200 | 2780 | 4430 | 1640 | 1430 |
| 3 | 914 | 10500 | 49600 | 4480 | 3890 | 2090 | 2280 | 8330 | 2520 | 3990 | 1640 | 1350 |
| 4 | 1200 | 8410 | 41000 | 6840 | 3470 | 1920 | 2360 | 6320 | 2310 | 4340 | 1600 | 1270 |
| 5 | 1380 | 6580 | 25200 | 9790 | 3030 | 1830 | 2740 | 6210 | 2230 | 4430 | 1550 | 1270 |
| 6 | 2050 | 5700 | 13900 | 6430 | 2810 | 1760 | 4080 | 5680 | 2500 | 4640 | 1550 | 2500 |
| 7 | 1530 | 5680 | 10400 | 5500 | 2630 | 1700 | 4070 | 5460 | 3050 | 4920 | 2010 | 2170 |
| 8 | 1390 | 4910 | 15900 | 6350 | 2460 | 1660 | 4880 | 7030 | 3670 | 6460 | 2940 | 1700 |
| 9 | 1290 | 4390 | 15800 | 5980 | 2340 | 1630 | 5900 | 8300 | 4030 | 5700 | 1990 | 1460 |
| 10 | 1770 | 3760 | 10900 | 5540 | 2170 | 1780 | 5020 | 8890 | 4430 | 4410 | 1760 | 1310 |
| 11 | 1590 | 3420 | 8410 | 7240 | 2110 | 2330 | 5960 | 7600 | 3940 | 3740 | 1620 | 1230 |
| 12 | 1340 | 3050 | 6960 | 5900 | 4820 | 2020 | 5180 | 5660 | 4050 | 3470 | 1560 | 1250 |
| 13 | 1210 | 2650 | 6210 | 4980 | 4840 | 1900 | 4210 | 5760 | 4340 | 3270 | 1500 | 1360 |
| 14 | 1180 | 8120 | 5580 | 6790 | 3900 | 1800 | 3690 | 5780 | 3420 | 3080 | 1480 | 1340 |
| 15 | 2300 | 11800 | 6840 | 19600 | 3540 | 1700 | 3710 | 4980 | 3440 | 3160 | 1500 | 1360 |
| 16 | 2180 | 8550 | 6620 | 28900 | 4800 | 1670 | 3130 | 5300 | 11000 | 3510 | 2010 | 1270 |
| 17 | 2810 | 6210 | 5640 | 19600 | 5340 | 1870 | 2810 | 6210 | 8030 | 3740 | 1970 | 1200 |
| 18 | 5840 | 5180 | 5160 | 13100 | 5440 | 3100 | 2980 | 4740 | 6790 | 3350 | 1760 | 1150 |
| 19 | 5090 | 4210 | 4860 | 9160 | 4170 | 3100 | 2860 | 4160 | 6880 | 2870 | 1590 | 1120 |
| 20 | 5700 | 3240 | 4550 | 7290 | 3890 | 2700 | 4760 | 3650 | 5720 | 2650 | 4900 | 1070 |
| 21 | 3710 | 2860 | 4280 | 6240 | 3350 | 2500 | 4940 | 3470 | 5020 | 2470 | 4070 | 1050 |
| 22 | 4130 | 2670 | 3960 | 5940 | 3030 | 2490 | 4100 | 3780 | 4620 | 2180 | 2550 | 1030 |
| 23 | 3470 | 6000 | 3710 | 6100 | 2900 | 2730 | 3510 | 3890 | 4010 | 2060 | 2010 | 1020 |
| 24 | 2850 | 16000 | 6910 | 4820 | 3100 | 4100 | 3960 | 3630 | 3630 | 2390 | 1760 | 994 |
| 25 | 2930 | 14700 | 7890 | 4260 | 3290 | 4500 | 4260 | 4230 | 4860 | 2420 | 1910 | 955 |
| 26 | 4650 | 11500 | 13600 | 3870 | 2980 | 3620 | 3720 | 3720 | 4250 | 2230 | 3180 | 916 |
| 27 | 3710 | 10200 | 13900 | 11900 | 2950 | 3270 | 3340 | 4920 | 3630 | 2060 | 2710 | 890 |
| 28 | 3550 | 7070 | 8140 | 10600 | 3140 | 3190 | 3470 | 5180 | 3800 | 1850 | 2120 | 890 |
| 29 | 7090 | 5550 | 8700 | 7500 | 2820 | 3020 | 3920 | 3890 | 4820 | 1800 | 1870 | 877 |
| 30 | 15000 | 5700 | 11600 | 5720 | --- | 2730 | 4960 | 3890 | 4430 | 1760 | 1710 | 851 |
| 31 | 10800 | --- | 7660 | 4900 | --- | 3100 | --- | 3290 | --- | 1690 | 1590 | --- |
| TOTAL | 104404 | 205380 | 391680 | 256100 | 101940 | 76670 | 116130 | 170750 | 131280 | 103410 | 63750 | 37783 |
| MEAN | 3368 | 6846 | 12630 | 8261 | 3515 | 2473 | 3871 | 5508 | 4376 | 3336 | 2056 | 1259 |
| MAX | 15000 | 16000 | 49600 | 28900 | 5440 | 4500 | 5960 | 10200 | 11000 | 6460 | 4900 | 2500 |
| MIN | 862 | 2650 | 3710 | 3870 | 2110 | 1630 | 2280 | 3290 | 2230 | 1690 | 1480 | 851 |
| CFSM | 5.59 | 11.4 | 20.9 | 13.7 | 5.83 | 4.10 | 6.42 | 9.13 | 7.26 | 5.53 | 3.41 | 2.09 |
| IN. | 6.44 | 12.67 | 24.16 | 15.80 | 6.29 | 4.73 | 7.16 | 10.53 | 8.10 | 6.38 | 3.93 | 2.33 |
| AC-FT | 207100 | 407400 | 776900 | 508000 | 202200 | 152100 | 230300 | 338700 | 260400 | 205100 | 126400 | 74940 |

CAL YR 1975 TOTAL 1782584 MEAN 4884 MAX 49600 MIN 800 CFSM 8.10 IN 109.97 AC-FT 3536000
WTR YR 1976 TOTAL 1759277 MEAN 4807 MAX 49600 MIN 851 CFSM 7.97 IN 108.53 AC-FT 3490000

## 12150800 SNOHOMISH RIVER NEAR MONROE, WA

LOCATION.--Lat 47°49'52", long 122°02'50", in NE¼NW¼ sec.16, T.27 N., R.6 E., Snohomish County, Hydrologic Unit 17110011, on left bank 150 ft (46 m) upstream from State Highway 522 bridge, 0.1 mi (0.2 km) downstream from confluence of Snoqualmie and Skykomish Rivers, 3.6 mi (5.8 km) southwest of Monroe, and 6 mi (9.7 km) south of Snohomish.

DRAINAGE AREA.--1,537 $mi^2$ (3,981 $km^2$).

PERIOD OF RECORD.--February 1963 to current year. Water years 1932, 1934, 1951, 1960, 1962-63 (annual maximum stage only) published in WSP 1932. Approximate annual maximum stages for water years 1921, 1949-50, 1952-59, and 1961 are on file in district office. Sediment records December 1974 to January 1976.

GAGE.--Water-stage recorder. Datum of gage is 13.25 ft (4.039 m) above mean sea level. Prior to February 1963 crest-stage gage only at site about 800 ft (244 m) downstream and Feb. 8, 1963, to May 27, 1964, water-stage recorder at site 100 ft (30 m) upstream both at mean sea level.

REMARKS.--Records excellent. Some regulation by powerplant above station at Snoqualmie Falls, 40 mi (64 km) upstream and by Spada Lake, 30 mi (48 km) upstream. Minor diversions for irrigation returned to river above gage. During 1976 water year city of Seattle Water Department diverted an average daily discharge of about 80 $ft^3/s$ (2.27 $m^3/s$) above station for municipal use and the city of Everett diverted an average daily discharge of 127 $ft^3/s$ (3.60 $m^3/s$) above the station for municipal use.

AVERAGE DISCHARGE.--13 years, 10,430 $ft^3/s$ (295.4 $m^3/s$), 92.15 in/yr (2,341 mm/yr), 7,557,000 acre-ft/yr (9,320 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum stage, 35.8 ft (10.91 m) Feb. 10, 1951, datum then in use (discharge not determined); maximum discharge during period February 1963 to September 1976, 115,000 $ft^3/s$ (3,260 $m^3/s$) Dec. 4, 1975, gage height, 22.92 ft (6.986 m); minimum, 1,140 $ft^3/s$ (32.3 $m^3/s$) Sept. 29, 1967, Sept. 17, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 1921 reached a discharge of approximately 180,000 $ft^3/s$ (5,100 $m^3/s$). Floods in November or December 1897 and November 1906 are believed to be higher.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 33,000 $ft^3/s$ (935 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 30 | 1600 | 40,800 | 1,160 | 11.75 | 3.581 | Dec. 4 | 1200 | *115,000 | 3,260 | *22.92 | 6.986 |
| Nov. 3 | 0300 | 42,000 | 1,190 | 11.99 | 3.655 | Dec. 26 | 2400 | 42,600 | 1,210 | 12.11 | 3.691 |
| Nov. 15 | 1600 | 41,000 | 1,160 | 11.81 | 3.600 | Jan. 16 | 0400 | 52,800 | 1,500 | 14.15 | 4.313 |
| Nov. 24 | 2200 | 51,000 | 1,440 | 13.80 | 4.206 | Jan. 27 | 1700 | 36,900 | 1,050 | 10.89 | 3.319 |

Minimum discharge, 1,740 $ft^3/s$ (49.3 $m^3/s$) Oct. 2, 3, gage height, 1.22 ft (0.372 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1810 | 21700 | 36900 | 14700 | 11400 | 6570 | 7230 | 16200 | 9480 | 13200 | 6330 | 4670 |
| 2 | 1780 | 26100 | 72400 | 12100 | 10600 | 6000 | 6450 | 24200 | 8820 | 13300 | 6180 | 4470 |
| 3 | 1870 | 37700 | 108000 | 10700 | 9870 | 5520 | 6000 | 23800 | 8160 | 12400 | 6210 | 4170 |
| 4 | 2600 | 27100 | 110000 | 13500 | 8890 | 5150 | 5940 | 18100 | 7590 | 13100 | 5910 | 3880 |
| 5 | 3170 | 19500 | 73500 | 21200 | 7890 | 4820 | 6510 | 16400 | 7380 | 13900 | 5520 | 3840 |
| 6 | 5000 | 16400 | 46100 | 16000 | 7320 | 4620 | 8990 | 15600 | 7950 | 14800 | 5400 | 5850 |
| 7 | 3820 | 16200 | 28500 | 12800 | 6870 | 4500 | 9870 | 14800 | 9480 | 16300 | 6390 | 6600 |
| 8 | 3190 | 15400 | 34200 | 13000 | 6540 | 4370 | 11400 | 18600 | 11400 | 18800 | 8280 | 5100 |
| 9 | 2980 | 13600 | 36400 | 12900 | 6420 | 4270 | 15300 | 22500 | 12400 | 18000 | 6630 | 4320 |
| 10 | 3550 | 11200 | 28400 | 11700 | 5970 | 4400 | 13300 | 24300 | 13700 | 13700 | 5760 | 3820 |
| 11 | 3560 | 9440 | 22000 | 14600 | 5730 | 5760 | 14800 | 24500 | 12700 | 11900 | 5460 | 3600 |
| 12 | 3010 | 8500 | 17900 | 13100 | 10400 | 5320 | 14100 | 18800 | 12600 | 11300 | 5350 | 3520 |
| 13 | 2750 | 7550 | 15300 | 10800 | 12300 | 5120 | 11600 | 17200 | 13300 | 10500 | 5120 | 3680 |
| 14 | 2710 | 19200 | 13100 | 11800 | 9660 | 4850 | 10000 | 17500 | 11000 | 10000 | 4870 | 3720 |
| 15 | 5640 | 36100 | 13200 | 34100 | 8850 | 4620 | 10800 | 15200 | 10500 | 10400 | 4700 | 3860 |
| 16 | 5810 | 28900 | 13500 | 49900 | 11400 | 4470 | 9280 | 15400 | 23700 | 11700 | 5670 | 3600 |
| 17 | 8430 | 19100 | 11600 | 41400 | 13700 | 4770 | 8100 | 18000 | 23100 | 12800 | 6090 | 3420 |
| 18 | 17300 | 14600 | 10900 | 33100 | 12800 | 7200 | 8100 | 14900 | 20100 | 11900 | 5270 | 3340 |
| 19 | 15300 | 11800 | 9760 | 24300 | 10300 | 8710 | 7650 | 12700 | 21000 | 10200 | 4850 | 3240 |
| 20 | 18700 | 9600 | 10000 | 18600 | 8780 | 7650 | 11300 | 11400 | 18700 | 9550 | 9900 | 3180 |
| 21 | 12300 | 8240 | 9130 | 15000 | 7770 | 7710 | 13100 | 10900 | 16200 | 8920 | 10900 | 3120 |
| 22 | 10900 | 7550 | 8100 | 13300 | 7020 | 7620 | 10600 | 11300 | 14900 | 7830 | 7200 | 3060 |
| 23 | 9140 | 11600 | 7710 | 14000 | 6660 | 8100 | 9060 | 12000 | 13300 | 7380 | 5730 | 3000 |
| 24 | 7500 | 38200 | 12100 | 11800 | 6930 | 9520 | 9520 | 11300 | 12200 | 8640 | 5050 | 2860 |
| 25 | 6990 | 38700 | 16800 | 10200 | 7530 | 13100 | 10800 | 13000 | 14100 | 8960 | 5350 | 2860 |
| 26 | 11000 | 32000 | 27500 | 9100 | 7140 | 10600 | 9730 | 12100 | 12800 | 8500 | 8470 | 2740 |
| 27 | 10400 | 28300 | 35200 | 25400 | 6870 | 9060 | 8680 | 14900 | 11200 | 7800 | 7950 | 2660 |
| 28 | 9780 | 19400 | 22800 | 26900 | 7590 | 8400 | 8820 | 16800 | 11600 | 6930 | 6540 | 2660 |
| 29 | 14900 | 14300 | 19600 | 19300 | 7080 | 7830 | 10200 | 12800 | 14600 | 6750 | 5730 | 2620 |
| 30 | 36600 | 12700 | 26500 | 15200 | --- | 7080 | 12500 | 11700 | 14600 | 6600 | 5220 | 2540 |
| 31 | 29100 | --- | 20000 | 12700 | --- | 7470 | --- | 10300 | --- | 6300 | 4900 | --- |
| TOTAL | 271590 | 580680 | 917100 | 563200 | 250280 | 205180 | 299730 | 497200 | 398560 | 342360 | 192930 | 110000 |
| MEAN | 8761 | 19360 | 29580 | 18170 | 8630 | 6619 | 9991 | 16040 | 13290 | 11040 | 6224 | 3667 |
| MAX | 36600 | 38700 | 110000 | 49900 | 13700 | 13100 | 15300 | 24500 | 23700 | 18800 | 10900 | 6600 |
| MIN | 1780 | 7550 | 7710 | 9100 | 5730 | 4270 | 5940 | 10300 | 7380 | 6300 | 4700 | 2540 |
| CFSM | 5.70 | 12.6 | 19.2 | 11.8 | 5.61 | 4.31 | 6.50 | 10.4 | 8.65 | 7.18 | 4.05 | 2.39 |
| IN. | 6.57 | 14.05 | 22.20 | 13.63 | 6.06 | 4.97 | 7.25 | 12.03 | 9.65 | 8.29 | 4.67 | 2.66 |
| AC-FT | 538700 | 1152000 | 1819000 | 1117000 | 496400 | 407000 | 594500 | 986200 | 790500 | 679100 | 382700 | 218200 |

CAL YR 1975 TOTAL 4420660 MEAN 12110 MAX 110000 MIN 1780 CFSM 7.88 IN 106.99 AC-FT 8768000
WTR YR 1976 TOTAL 4628810 MEAN 12650 MAX 110000 MIN 1780 CFSM 8.23 IN 112.03 AC-FT 9181000

## 12157250 MISSION CREEK NEAR TULALIP, WA

LOCATION.--Lat 48°03'31", long 122°15'58", in SW¼NW¼ sec.26, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, on left bank at downstream side of highway crossing, 0.25 mi (0.4 km) above mouth, and 0.9 mi (1.4 km) east of Tulalip.

DRAINAGE AREA.--7.92 mi² (20.51 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 40 ft (12 m) from topographic map.

REMARKS.--Water discharge records good. Some natural regulation in lakes and beaver ponds.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 81 ft³/s (2.29 m³/s) Oct. 10, 1975, gage height, 4.06 ft (1.237 m) probably result of release of water from beaver ponds; minimum 0.43 ft³/s (0.012 m³/s) Aug. 16, 1975, gage height, 2.35 ft (0.716 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 81 ft³/s (2.29 m³/s) Oct. 10, gage height, 4.06 ft (1.237 m) probably result of release of water from beaver ponds; minimum, 0.54 ft³/s (0.015 m³/s) Aug. 2, gage height, 2.38 ft (0.725 m) probably result of beaver activity upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.0 | 4.8 | 16 | 9.9 | 7.9 | 10 | 17 | 6.8 | 6.7 | 1.6 | 1.2 | 2.3 |
| 2 | 1.8 | 4.2 | 19 | 9.2 | 7.6 | 8.5 | 13 | 7.4 | 8.9 | 1.4 | 1.2 | 2.5 |
| 3 | 2.5 | 4.4 | 20 | 8.9 | 7.3 | 7.3 | 11 | 7.3 | 8.2 | 2.1 | 1.8 | 2.5 |
| 4 | 3.5 | 4.2 | 32 | 11 | 7.0 | 6.7 | 9.8 | 6.6 | 5.5 | 1.7 | 2.2 | 2.2 |
| 5 | 4.5 | 4.4 | 24 | 11 | 6.4 | 6.1 | 8.8 | 7.6 | 4.1 | 1.7 | 1.9 | 2.5 |
| 6 | 5.5 | 8.8 | 17 | 11 | 6.1 | 5.8 | 8.2 | 7.3 | 2.8 | 1.7 | 1.9 | 4.5 |
| 7 | 4.5 | 11 | 17 | 11 | 7.3 | 5.8 | 7.5 | 6.0 | 3.4 | 1.6 | 3.2 | 4.3 |
| 8 | 3.0 | 8.9 | 21 | 12 | 6.4 | 5.8 | 8.3 | 5.1 | 3.0 | 3.0 | 8.9 | 3.4 |
| 9 | 3.2 | 6.7 | 19 | 11 | 6.1 | 5.5 | 8.7 | 4.5 | 2.8 | 2.3 | 6.4 | 2.5 |
| 10 | 7.6 | 5.5 | 16 | 9.9 | 5.6 | 6.2 | 7.5 | 4.5 | 2.6 | 2.2 | 2.8 | 2.3 |
| 11 | 5.8 | 4.8 | 14 | 11 | 5.5 | 7.8 | 9.5 | 5.7 | 2.8 | 1.9 | 1.5 | 2.3 |
| 12 | 3.2 | 4.1 | 12 | 11 | 5.8 | 6.9 | 11 | 6.6 | 3.0 | 1.8 | 1.6 | 2.3 |
| 13 | 3.0 | 4.3 | 12 | 9.9 | 6.4 | 5.7 | 8.9 | 5.3 | 3.4 | 1.9 | 1.8 | 2.5 |
| 14 | 2.8 | 9.2 | 12 | 10 | 6.7 | 5.5 | 7.8 | 4.8 | 3.8 | 1.4 | 2.2 | 3.8 |
| 15 | 2.8 | 16 | 11 | 17 | 6.1 | 5.0 | 11 | 4.3 | 3.4 | 1.1 | 2.6 | 4.3 |
| 16 | 3.2 | 15 | 9.9 | 35 | 6.1 | 4.9 | 11 | 4.1 | 8.9 | 1.3 | 6.7 | 3.4 |
| 17 | 7.9 | 13 | 9.2 | 23 | 6.4 | 5.3 | 9.1 | 3.6 | 8.2 | 1.1 | 4.8 | 2.8 |
| 18 | 25 | 11 | 8.5 | 19 | 6.4 | 5.4 | 8.8 | 3.0 | 4.6 | 1.2 | 3.0 | 2.6 |
| 19 | 15 | 7.6 | 7.6 | 16 | 6.4 | 6.7 | 13 | 3.0 | 3.2 | 1.3 | 4.1 | 2.5 |
| 20 | 8.9 | 6.1 | 7.6 | 13 | 7.3 | 7.1 | 33 | 2.5 | 3.3 | 1.2 | 9.2 | 2.0 |
| 21 | 6.3 | 5.3 | 7.0 | 12 | 6.7 | 7.1 | 26 | 3.0 | 2.8 | 1.4 | 6.1 | 1.9 |
| 22 | 5.2 | 5.0 | 7.3 | 14 | 5.8 | 8.5 | 20 | 2.6 | 2.6 | 1.4 | 3.2 | 2.0 |
| 23 | 4.3 | 8.2 | 11 | 17 | 5.5 | 13 | 16 | 3.6 | 2.2 | 1.5 | 2.8 | 2.2 |
| 24 | 3.4 | 23 | 16 | 12 | 5.8 | 13 | 15 | 3.2 | 2.1 | 1.3 | 3.0 | 2.3 |
| 25 | 4.2 | 20 | 14 | 11 | 7.0 | 17 | 17 | 3.8 | 2.8 | 1.3 | 6.1 | 2.3 |
| 26 | 7.9 | 18 | 13 | 11 | 8.2 | 13 | 13 | 3.8 | 2.3 | 1.2 | 13 | 2.5 |
| 27 | 6.6 | 17 | 14 | 11 | 9.9 | 11 | 11 | 4.1 | 2.0 | 1.2 | 7.0 | 2.2 |
| 28 | 5.1 | 13 | 12 | 10 | 13 | 12 | 9.8 | 4.8 | 1.4 | 1.1 | 4.8 | 2.0 |
| 29 | 5.3 | 10 | 12 | 9.2 | 12 | 12 | 8.5 | 4.5 | 1.2 | 1.2 | 3.4 | 2.0 |
| 30 | 7.3 | 12 | 14 | 8.5 | --- | 10 | 7.6 | 4.5 | 1.4 | 1.4 | 2.8 | 1.6 |
| 31 | 6.4 | --- | 12 | 8.5 | --- | 21 | --- | 4.3 | --- | 1.0 | 2.5 | --- |
| TOTAL | 177.7 | 285.5 | 437.1 | 394.0 | 204.9 | 265.6 | 366.8 | 148.2 | 113.4 | 47.5 | 123.7 | 78.5 |
| MEAN | 5.73 | 9.52 | 14.1 | 12.7 | 7.07 | 8.57 | 12.2 | 4.78 | 3.78 | 1.53 | 3.99 | 2.62 |
| MAX | 25 | 23 | 32 | 35 | 13 | 21 | 33 | 7.6 | 8.9 | 3.0 | 13 | 4.5 |
| MIN | 1.8 | 4.1 | 7.0 | 8.5 | 5.5 | 4.9 | 7.5 | 2.5 | 1.2 | 1.0 | 1.2 | 1.6 |
| CFSM | .72 | 1.20 | 1.78 | 1.60 | .89 | 1.08 | 1.54 | .60 | .48 | .19 | .50 | .33 |
| IN. | .83 | 1.34 | 2.05 | 1.85 | .96 | 1.25 | 1.72 | .70 | .53 | .22 | .58 | .37 |
| AC-FT | 352 | 566 | 867 | 781 | 406 | 527 | 728 | 294 | 225 | 94 | 245 | 156 |

CAL YR 1975 TOTAL 2753.9 MEAN 7.54 MAX 37 MIN 1.2 CFSM .95 IN 12.93 AC-FT 5460
WTR YR 1976 TOTAL 2642.9 MEAN 7.22 MAX 35 MIN 1.0 CFSM .91 IN 12.41 AC-FT 5240

## 12157250 MISSION CREEK NEAR TULALIP, WA--Continued

### WATER--QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1974 to current year.

INSTRUMENTATION.--Temperature recorder since Oct. 16, 1974.

REMARKS.--Temperature recorder clock stopped Dec. 14-17 (range in temperature 1.5°C to 3.0°C).

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 21.0°C July 5-7, 27, 1975; minimum, 0.5°C Nov. 29, Dec. 19, 21, 1975, Feb. 6, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 20.5°C July 5; minimum, 0.5°C Nov. 29, Dec. 19, 21, Feb. 6.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 08... | 1600 | 3.0 | -- | -- | 11.1 | -- | -- | 145 | -- |
| NOV | | | | | | | | | |
| 06... | 1030 | 8.5 | -- | -- | 9.0 | -- | -- | >1000 | -- |
| DEC | | | | | | | | | |
| 18... | 1430 | 8.2 | 85 | 7.3 | 1.0 | 1 | -- | 34 | -- |
| JAN | | | | | | | | | |
| 08... | 1356 | 11 | -- | -- | -- | -- | -- | 80 | -- |
| FEB | | | | | | | | | |
| 04... | 1300 | 7.0 | -- | -- | 2.7 | -- | -- | 50 | -- |
| MAR | | | | | | | | | |
| 04... | 1200 | 6.7 | 65 | 7.0 | 2.0 | 1 | -- | 96 | -- |
| APR | | | | | | | | | |
| 08... | 0930 | 7.9 | -- | -- | 9.4 | -- | -- | 890 | -- |
| MAY | | | | | | | | | |
| 04... | 1010 | 6.7 | -- | -- | 11.7 | -- | -- | 140 | -- |
| JUN | | | | | | | | | |
| 03... | 0948 | 8.8 | 77 | 6.8 | 11.7 | 1 | -- | 230 | -- |
| JUL | | | | | | | | | |
| 13... | 1015 | 1.4 | -- | -- | 16.6 | -- | -- | 1600 | -- |
| AUG | | | | | | | | | |
| 05... | 1300 | 1.8 | -- | -- | 16.0 | -- | -- | 100 | -- |
| SEP | | | | | | | | | |
| 09... | 1410 | 2.5 | 101 | -- | 13.6 | -- | 9.4 | 570 | B29 |

B Results based upon colony counts outside the ideal range.

| DATE | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | CARBONATE (CO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | |
| 18... | 31 | 9 | 5.3 | 4.2 | 4.0 | 1.0 | 26 | 0 | 21 |
| JAN | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | |
| 04... | 31 | 8 | 5.5 | 4.3 | 4.0 | 1.0 | 29 | 0 | 24 |
| APR | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | |
| 03... | 36 | 5 | 5.4 | 5.4 | 4.0 | .5 | 37 | 0 | 30 |
| JUL | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- |

## 12157250 MISSION CREEK NEAR TULALIP, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED FLUO-RIDE (F) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT<br>08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV<br>06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC<br>18... | 8.8 | 5.3 | .1 | .77 | .01 | .09 | .46 | .02 | .01 |
| JAN<br>08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB<br>04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR<br>04... | 7.2 | 4.3 | .1 | .75 | .01 | .11 | .38 | .02 | .01 |
| APR<br>08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY<br>04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN<br>03... | 7.1 | 3.4 | .1 | .04 | .01 | .15 | .54 | .04 | .02 |
| JUL<br>13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG<br>05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP<br>09... | -- | -- | -- | .02 | .01 | .15 | .65 | .06 | .03 |

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DAY | OCTOBER |  | NOVEMBER |  | DECEMBER |  | JANUARY |  | FEBRUARY |  | MARCH |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 12.0 | 10.5 | 9.0 | 8.5 | 3.5 | 2.0 | 3.0 | 1.5 | 5.0 | 4.5 | 4.0 | 3.0 |
| 2 | 13.0 | 11.5 | 9.5 | 9.0 | 7.0 | 3.5 | 1.5 | 1.5 | 4.5 | 4.5 | 3.5 | 2.0 |
| 3 | 13.5 | 13.0 | 11.0 | 9.5 | 8.5 | 7.0 | 3.0 | 1.5 | 5.0 | 4.5 | 3.0 | 1.5 |
| 4 | 13.0 | 12.0 | 11.5 | 10.5 | 8.5 | 6.0 | 4.5 | 3.0 | 4.5 | 3.0 | 3.0 | 1.5 |
| 5 | 13.0 | 12.0 | 11.0 | 10.0 | 6.0 | 4.5 | 5.0 | 4.5 | 3.0 | 1.0 | 3.0 | 1.5 |
| 6 | 12.0 | 11.0 | 10.0 | 9.0 | 4.5 | 3.0 | 4.5 | 4.5 | 1.5 | 0.5 | 4.0 | 1.5 |
| 7 | 11.0 | 10.5 | 9.0 | 8.0 | 4.0 | 3.0 | 4.5 | 4.5 | 2.0 | 1.0 | 4.5 | 3.5 |
| 8 | 11.0 | 10.5 | 8.0 | 6.5 | 6.0 | 4.0 | 5.0 | 4.5 | 3.0 | 1.5 | 4.5 | 3.0 |
| 9 | 11.5 | 11.0 | 6.5 | 6.0 | 7.0 | 6.0 | 5.0 | 5.0 | 3.5 | 2.0 | 5.5 | 4.0 |
| 10 | 12.0 | 11.0 | 6.0 | 6.0 | 6.5 | 5.0 | 5.0 | 5.0 | 4.0 | 3.0 | 5.5 | 5.0 |
| 11 | 11.0 | 10.5 | 6.5 | 6.0 | 5.0 | 4.0 | 5.0 | 4.5 | 4.5 | 4.0 | 5.5 | 4.0 |
| 12 | 11.0 | 10.0 | 6.5 | 6.0 | 4.0 | 2.0 | 4.5 | 4.0 | 5.0 | 4.5 | 5.0 | 4.0 |
| 13 | 11.0 | 10.5 | 7.0 | 6.5 | 2.0 | 1.5 | 4.0 | 3.5 | 6.0 | 4.5 | 5.5 | 4.0 |
| 14 | 11.0 | 10.5 | 9.0 | 7.0 | --- | --- | 5.0 | 4.0 | 6.0 | 5.5 | 6.0 | 4.5 |
| 15 | 11.5 | 11.0 | 9.0 | 8.0 | --- | --- | 6.5 | 5.0 | 5.5 | 5.0 | 6.0 | 4.0 |
| 16 | 11.5 | 11.0 | 8.0 | 6.5 | --- | --- | 8.0 | 6.5 | 6.0 | 5.0 | 7.0 | 5.0 |
| 17 | 11.5 | 11.0 | 6.5 | 5.0 | --- | --- | 8.0 | 7.0 | 6.0 | 5.5 | 8.0 | 6.5 |
| 18 | 11.0 | 10.5 | 5.0 | 3.5 | 1.0 | 1.0 | 7.0 | 6.0 | 5.5 | 5.0 | 8.5 | 7.0 |
| 19 | 11.0 | 10.5 | 3.5 | 3.0 | 1.0 | 0.5 | 6.0 | 4.0 | 5.5 | 4.5 | 8.0 | 6.5 |
| 20 | 11.0 | 10.5 | 3.5 | 3.0 | 1.0 | 1.0 | 4.0 | 3.0 | 5.0 | 4.0 | 8.0 | 6.0 |
| 21 | 10.5 | 10.0 | 4.5 | 3.0 | 1.0 | 0.5 | 3.0 | 2.0 | 5.0 | 4.0 | 8.0 | 6.5 |
| 22 | 10.0 | 9.5 | 5.0 | 4.5 | 2.0 | 1.0 | 4.0 | 3.0 | 6.0 | 4.0 | 7.0 | 6.0 |
| 23 | 9.5 | 8.5 | 6.5 | 5.0 | 3.5 | 2.0 | 4.5 | 4.0 | 6.0 | 5.5 | 6.0 | 6.0 |
| 24 | 8.5 | 7.0 | 8.0 | 6.5 | 5.0 | 3.5 | 4.0 | 3.5 | 6.0 | 5.0 | 6.5 | 6.0 |
| 25 | 8.0 | 8.0 | 6.5 | 6.0 | 5.0 | 4.5 | 4.0 | 3.5 | 5.5 | 4.5 | 7.0 | 5.5 |
| 26 | 8.0 | 7.0 | 6.5 | 6.0 | 6.5 | 5.0 | 4.5 | 3.5 | 5.5 | 4.5 | 8.0 | 6.0 |
| 27 | 8.5 | 8.0 | 6.5 | 5.0 | 6.0 | 5.0 | 6.0 | 4.5 | 5.0 | 4.5 | 7.0 | 6.0 |
| 28 | 8.5 | 8.0 | 5.0 | 3.0 | 5.5 | 5.0 | 7.0 | 5.5 | 4.5 | 4.0 | 8.0 | 6.0 |
| 29 | 8.5 | 8.0 | 3.0 | 0.5 | 6.5 | 5.5 | 6.5 | 6.0 | 4.0 | 3.5 | 7.0 | 6.0 |
| 30 | 9.0 | 8.5 | 2.0 | 1.0 | 6.5 | 5.0 | 6.5 | 6.0 | --- | --- | 8.5 | 6.5 |
| 31 | 8.5 | 8.5 | --- | --- | 5.0 | 3.0 | 6.0 | 5.0 | --- | --- | 8.0 | 6.5 |
| MONTH | 13.5 | 7.0 | 11.5 | 0.5 | 8.5 | 0.5 | 8.0 | 1.5 | 6.0 | 0.5 | 8.5 | 1.5 |

## 12157250 MISSION CREEK NEAR TULALIP, WA--Continued

### TEMPERATURE (DEG.C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 9.0 | 5.5 | 16.5 | 13.5 | 14.0 | 10.5 | 18.0 | 15.5 | 18.5 | 15.5 | 16.0 | 15.5 |
| 2 | 9.5 | 6.0 | 15.0 | 13.0 | 14.0 | 11.0 | 19.0 | 14.5 | 19.0 | 15.5 | 16.5 | 14.5 |
| 3 | 10.5 | 7.0 | 14.0 | 12.0 | 16.0 | 11.5 | 17.0 | 16.0 | 18.5 | 16.5 | 16.0 | 14.5 |
| 4 | 11.0 | 8.0 | 13.0 | 11.5 | 16.0 | 13.0 | 18.5 | 16.0 | 17.0 | 16.0 | 16.0 | 15.0 |
| 5 | 11.0 | 8.0 | 14.0 | 11.0 | 16.5 | 13.0 | 20.5 | 16.5 | 17.0 | 16.0 | 16.0 | 15.5 |
| 6 | 11.0 | 9.0 | 14.5 | 11.0 | 16.0 | 14.0 | 20.0 | 18.5 | 17.0 | 16.0 | 15.5 | 14.0 |
| 7 | 10.0 | 8.0 | 16.0 | 11.0 | 16.0 | 14.0 | 19.5 | 18.0 | 16.5 | 15.5 | 15.0 | 13.5 |
| 8 | 10.0 | 9.5 | 17.0 | 13.0 | 16.0 | 14.5 | 19.5 | 17.0 | 16.0 | 15.5 | 14.5 | 12.0 |
| 9 | 12.0 | 9.0 | 18.0 | 13.0 | 16.5 | 14.5 | 19.0 | 17.0 | 17.0 | 15.5 | 14.0 | 12.0 |
| 10 | 13.5 | 10.0 | 18.0 | 14.0 | 15.5 | 15.0 | 18.0 | 15.5 | 17.0 | 15.0 | 13.5 | 12.0 |
| 11 | 12.0 | 10.5 | 15.5 | 13.0 | 15.0 | 13.5 | 18.0 | 16.0 | 17.0 | 15.0 | 13.5 | 12.0 |
| 12 | 10.5 | 9.0 | 15.0 | 12.0 | 14.0 | 13.0 | 17.0 | 16.0 | 17.0 | 15.5 | 14.5 | 13.0 |
| 13 | 11.5 | 8.5 | 14.5 | 12.0 | 14.5 | 12.0 | 18.5 | 15.0 | 16.5 | 15.5 | 14.5 | 13.0 |
| 14 | 9.5 | 8.0 | 14.5 | 10.5 | 16.5 | 12.0 | 19.5 | 15.5 | 17.0 | 15.5 | 14.5 | 14.0 |
| 15 | 8.0 | 6.5 | 16.5 | 11.0 | 16.0 | 14.5 | 20.0 | 15.5 | 17.0 | 15.5 | 14.0 | 12.0 |
| 16 | 10.0 | 6.5 | 16.0 | 13.0 | 15.0 | 13.5 | 20.0 | 16.5 | 16.0 | 15.0 | 13.5 | 12.0 |
| 17 | 9.0 | 8.0 | 14.5 | 12.0 | 18.5 | 13.5 | 19.0 | 16.0 | 16.5 | 14.5 | 14.5 | 13.5 |
| 18 | 10.0 | 7.0 | 15.0 | 11.5 | 19.5 | 15.0 | 19.0 | 15.0 | 16.5 | 15.0 | 14.5 | 13.5 |
| 19 | 10.5 | 8.5 | 15.0 | 13.0 | 19.0 | 15.5 | 19.0 | 15.0 | 16.0 | 14.5 | 14.5 | 13.5 |
| 20 | 10.5 | 8.5 | 14.5 | 13.5 | 17.0 | 14.0 | 19.5 | [illegible] | 16.0 | 14.5 | 15.0 | 13.5 |
| 21 | 11.0 | 8.5 | 16.0 | 12.0 | 17.0 | 15.0 | 18.5 | 16.5 | 16.5 | 14.0 | 14.5 | 13.5 |
| 22 | 11.5 | 9.0 | 15.0 | 13.5 | 17.0 | 15.0 | 17.0 | 15.0 | 15.5 | 14.5 | 15.0 | 14.5 |
| 23 | 10.5 | 9.5 | 15.0 | 13.0 | 16.0 | 14.5 | 19.0 | 15.0 | 15.5 | 15.0 | 15.0 | 14.5 |
| 24 | 10.0 | 9.0 | 14.5 | 13.0 | 15.0 | 13.5 | 19.5 | 16.5 | 16.5 | 15.0 | 14.5 | 13.5 |
| 25 | 11.5 | 8.5 | 14.5 | 11.5 | 15.5 | 13.0 | 19.5 | 15.5 | 16.5 | 14.5 | 14.5 | 13.5 |
| 26 | 13.0 | 9.0 | 15.0 | 13.0 | 17.0 | 13.5 | 18.0 | 16.0 | 15.5 | 14.0 | 14.5 | 13.5 |
| 27 | 14.0 | 9.5 | 15.0 | 12.0 | 18.0 | 14.0 | 18.5 | 14.0 | 15.5 | 14.5 | 14.5 | 13.5 |
| 28 | 14.5 | 10.5 | 13.0 | 11.0 | 19.0 | 15.0 | 18.5 | 14.0 | 17.0 | 15.5 | 15.0 | 13.5 |
| 29 | 15.0 | 11.0 | 13.0 | 11.5 | 17.0 | 16.0 | 18.0 | 16.0 | 16.5 | 15.5 | 14.5 | 13.5 |
| 30 | 15.5 | 12.0 | 13.0 | 10.5 | 18.0 | 15.5 | 19.0 | 15.0 | 16.5 | 15.0 | 14.0 | 12.0 |
| 31 | --- | --- | 12.0 | 11.0 | --- | --- | 19.5 | 16.5 | 16.5 | 15.5 | --- | --- |
| MONTH | 15.5 | 5.5 | 18.0 | 10.5 | 19.5 | 10.5 | 20.5 | 14.0 | 19.0 | 14.0 | 16.5 | 12.0 |
| YEAR | 20.5 | 0.5 | | | | | | | | | | |

## 12158040 TULALIP CREEK AT TULALIP, WA

LOCATION.--Lat 48°04'09", long 122°17'08", in NW¼SW¼ sec.22, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, on left bank 600 ft (183 m) upstream from highway crossing, 0.15 mi (0.24 km) east of Tulalip and 0.35 mi (0.56 km) above mouth.

DRAINAGE AREA.--15.4 mi² (39.9 km²).

### WATER DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 60 ft (18 m), from topographic map.

REMARKS.--Water discharge records good. Some regulation by manipulation of planks in a wooden flume at outlet of Lake Shoecraft (12158000), drainage area 6.12 mi² (15.9 km²), and natural regulation in lakes and beaver ponds in basin. Minor diversions above station by town of Tulalip for fish pond and domestic use from East Fork Tulalip Creek.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65 ft³/s (1.84 m³/s) Jan. 16, 1976, gage height, 3.79 ft (1.155 m); minimum, 4.1 ft³/s (0.12 m³/s) July 26, 31, 1976; minimum gage height, 2.72 ft (0.829 m) June 13, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 65 ft³/s (1.84 m³/s) Jan. 16, gage height, 3.79 ft (1.155 m); minimum, 4.1 ft³/s (0.12 m³/s) July 26, 31, gage height, 2.79 ft (0.850 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.7 | 7.1 | 20 | 19 | 20 | 19 | 39 | 16 | 18 | 5.9 | 5.2 | 6.3 |
| 2 | 6.7 | 7.4 | 26 | 18 | 19 | 17 | 34 | 15 | 14 | 5.9 | 5.2 | 6.7 |
| 3 | 7.4 | 9.1 | 21 | 18 | 19 | 16 | 31 | 12 | 10 | 6.3 | 7.4 | 6.3 |
| 4 | 9.1 | 7.1 | 37 | 22 | 17 | 15 | 28 | 10 | 7.8 | 7.1 | 7.8 | 6.3 |
| 5 | 10 | 8.2 | 38 | 24 | 16 | 15 | 27 | 13 | 7.1 | 6.3 | 6.7 | 7.8 |
| 6 | 15 | 20 | 35 | 22 | 16 | 14 | 25 | 10 | 7.1 | 5.5 | 6.7 | 11 |
| 7 | 7.1 | 15 | 40 | 22 | 16 | 14 | 24 | 9.1 | 6.7 | 5.9 | 9.5 | 8.2 |
| 8 | 6.7 | 12 | 46 | 25 | 17 | 14 | 25 | 8.6 | 6.3 | 7.8 | 14 | 7.1 |
| 9 | 9.1 | 10 | 40 | 21 | 16 | 14 | 25 | 7.8 | 6.3 | 5.9 | 9.1 | 6.3 |
| 10 | 10 | 8.2 | 36 | 21 | 15 | 16 | 22 | 8.2 | 6.3 | 6.3 | 7.8 | 5.9 |
| 11 | 7.4 | 9.1 | 33 | 21 | 15 | 18 | 30 | 11 | 6.7 | 5.9 | 6.7 | 5.5 |
| 12 | 6.7 | 7.4 | 30 | 21 | 15 | 15 | 26 | 8.6 | 7.8 | 6.3 | 6.3 | 5.9 |
| 13 | 6.7 | 7.8 | 31 | 19 | 17 | 14 | 22 | 8.2 | 8.2 | 6.3 | 6.7 | 5.5 |
| 14 | 6.3 | 18 | 29 | 23 | 17 | 14 | 22 | 7.8 | 6.7 | 5.5 | 7.8 | 10 |
| 15 | 8.6 | 28 | 28 | 39 | 16 | 13 | 28 | 7.4 | 9.5 | 5.5 | 9.1 | 8.6 |
| 16 | 10 | 19 | 27 | 50 | 16 | 13 | 27 | 7.1 | 18 | 5.2 | 16 | 7.1 |
| 17 | 21 | 16 | 25 | 41 | 16 | 14 | 22 | 6.7 | 11 | 5.5 | 9.1 | 6.7 |
| 18 | 38 | 12 | 23 | 37 | 16 | 14 | 21 | 6.3 | 7.8 | 5.2 | 7.1 | 6.7 |
| 19 | 14 | 9.1 | 22 | 32 | 16 | 18 | 24 | 6.3 | 8.6 | 5.2 | 12 | 6.7 |
| 20 | 13 | 8.2 | 21 | 29 | 18 | 16 | 52 | 6.7 | 8.6 | 5.5 | 21 | 6.7 |
| 21 | 10 | 7.4 | 21 | 26 | 16 | 14 | 38 | 6.3 | 6.7 | 5.9 | 10 | 7.1 |
| 22 | 8.6 | 8.2 | 21 | 32 | 15 | 20 | 31 | 6.3 | 7.4 | 6.3 | 7.4 | 7.1 |
| 23 | 7.4 | 16 | 30 | 33 | 15 | 28 | 27 | 6.7 | 6.7 | 6.3 | 7.4 | 7.4 |
| 24 | 6.7 | 34 | 34 | 28 | 16 | 28 | 28 | 7.1 | 7.1 | 5.5 | 7.8 | 7.8 |
| 25 | 12 | 19 | 25 | 27 | 18 | 27 | 30 | 8.2 | 7.4 | 5.2 | 14 | 7.4 |
| 26 | 16 | 25 | 28 | 25 | 20 | 22 | 24 | 7.1 | 6.3 | 5.2 | 17 | 6.7 |
| 27 | 9.5 | 18 | 28 | 25 | 24 | 20 | 22 | 9.5 | 5.9 | 5.2 | 10 | 6.3 |
| 28 | 8.2 | 12 | 24 | 24 | 27 | 22 | 20 | 11 | 5.9 | 5.2 | 8.6 | 5.9 |
| 29 | 11 | 10 | 24 | 22 | 22 | 21 | 19 | 8.2 | 5.5 | 5.5 | 7.4 | 5.9 |
| 30 | 11 | 17 | 25 | 21 | --- | 19 | 17 | 9.1 | 5.9 | 5.9 | 7.1 | 5.5 |
| 31 | 9.1 | --- | 21 | 20 | --- | 43 | --- | 8.6 | --- | 5.9 | 6.7 | --- |
| TOTAL | 329.0 | 405.3 | 889 | 807 | 506 | 567 | 810 | 273.9 | 247.3 | 181.1 | 284.6 | 208.4 |
| MEAN | 10.6 | 13.5 | 28.7 | 26.0 | 17.4 | 18.3 | 27.0 | 8.84 | 8.24 | 5.84 | 9.18 | 6.95 |
| MAX | 38 | 34 | 46 | 50 | 27 | 43 | 52 | 16 | 18 | 7.8 | 21 | 11 |
| MIN | 6.3 | 7.1 | 20 | 18 | 15 | 13 | 17 | 6.3 | 5.5 | 5.2 | 5.2 | 5.5 |
| CFSM | .69 | .88 | 1.86 | 1.69 | 1.13 | 1.19 | 1.75 | .57 | .54 | .38 | .60 | .45 |
| IN. | .79 | .98 | 2.15 | 1.95 | 1.22 | 1.37 | 1.96 | .66 | .60 | .44 | .69 | .50 |
| AC-FT | 653 | 804 | 1760 | 1600 | 1000 | 1120 | 1610 | 543 | 491 | 359 | 565 | 413 |

CAL YR 1975 TOTAL 5195.2 MEAN 14.2 MAX 48 MIN 5.4 CFSM .92 IN 12.55 AC-FT 10300
WTR YR 1976 TOTAL 5508.6 MEAN 15.1 MAX 52 MIN 5.2 CFSM .98 IN 13.31 AC-FT 10930

## 12158040 TULALIP CREEK AT TULALIP, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1974 to current year.

INSTRUMENTATION.--Temperature recorder since Oct. 16, 1974.

REMARKS.--Temperature recorder clock stopped Dec. 11-17 (range in temperature 0.5°C to 4.0°C), July 5-12 (range in temperature 14.5°C to 21.5°C).

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum recorded, 21.5°C June 1, July 26, 27, 1975, sometime July 5-12, 1976, but could have been greater during period of missing record June 28 to July 10, July 12, 13, 25, 1975; minimum, 0.0°C, Nov. 29, 1975, Feb. 5, 6, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 21.5°C sometime July 5-12; minimum, 0.0°C Nov. 29, Feb. 5, 6.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT 08... | 1630 | 6.7 | -- | -- | 11.3 | -- | -- | 750 | -- |
| DEC 18... | 1015 | 23 | 101 | 7.0 | .7 | 1 | -- | 150 | -- |
| JAN 08... | 1010 | 26 | -- | -- | 5.0 | -- | -- | 36 | -- |
| FEB 04... | 1200 | 17 | -- | -- | 2.8 | -- | -- | 80 | -- |
| MAR 04... | 1025 | 15 | 79 | 7.1 | 1.6 | 1 | -- | 110 | -- |
| APR 08... | 1017 | 25 | -- | -- | -- | -- | -- | 860 | -- |
| MAY 04... | 1140 | 10 | -- | -- | 11.4 | -- | -- | 410 | -- |
| JUN 03... | 1300 | 10 | 85 | 6.9 | 12.0 | 1 | -- | 270 | -- |
| JUL 13... | 0905 | 5.9 | -- | -- | 14.0 | -- | -- | 220 | -- |
| AUG 05... | 1130 | 6.3 | -- | -- | 15.0 | -- | -- | 170 | -- |
| SEP 09... | 1215 | 6.3 | 121 | -- | 11.8 | -- | 9.7 | 4100 | B1500 |

B Results based upon colony counts the ideal range.

| DATE | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | CARBONATE (CO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC 18... | 34 | 3 | 5.8 | 4.8 | 4.7 | 1.2 | 38 | 0 | 31 |
| JAN 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR 04... | 37 | 4 | 6.5 | 5.0 | 5.3 | 1.3 | 40 | 0 | 33 |
| APR 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN 03... | 40 | 0 | 6.9 | 5.6 | 5.0 | .7 | 49 | 0 | 40 |
| JUL 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- |

12158040 TULALIP CREEK AT TULALIP, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED FLUO-RIDE (F) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC 18... | 6.6 | 5.5 | .1 | .58 | .01 | .07 | .46 | .04 | .03 |
| JAN 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR 04... | 5.2 | 4.0 | .1 | .67 | .01 | .10 | .43 | .05 | .02 |
| APR 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN 03... | 6.7 | 3.8 | .1 | .12 | .01 | .20 | .59 | .07 | .05 |
| JUL 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP 09... | -- | -- | -- | .17 | .01 | .13 | .56 | .11 | .07 |

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 13.5 | 10.0 | 9.0 | 8.0 | 5.0 | 1.5 | 2.5 | 1.5 | 4.5 | 4.0 | 5.5 | 3.0 |
| 2 | 13.5 | 11.5 | 9.5 | 8.5 | 8.0 | 5.0 | 2.0 | 1.5 | 4.5 | 4.5 | 4.5 | 1.5 |
| 3 | 13.0 | 12.5 | 13.0 | 9.5 | 8.5 | 8.0 | 3.5 | 2.0 | 6.0 | 4.0 | 3.5 | 0.5 |
| 4 | 13.5 | 11.0 | 12.5 | 11.0 | 8.0 | 5.0 | 5.5 | 3.5 | 4.0 | 1.0 | 4.0 | 1.0 |
| 5 | 13.5 | 11.0 | 12.0 | 9.0 | 5.0 | 2.0 | 5.5 | 5.0 | 2.0 | 0.0 | 5.0 | 1.0 |
| 6 | 12.0 | 10.0 | 9.0 | 8.0 | 2.5 | 2.0 | 5.0 | 4.5 | 2.0 | 0.0 | 5.5 | 1.5 |
| 7 | 10.0 | 9.0 | 8.0 | 7.0 | 5.0 | 2.5 | 5.0 | 4.5 | 3.0 | 1.0 | 6.0 | 3.0 |
| 8 | 11.5 | 9.5 | 7.0 | 6.0 | 7.0 | 5.0 | 6.0 | 5.0 | 3.5 | 2.0 | 6.5 | 2.5 |
| 9 | 11.0 | 10.5 | 6.5 | 5.5 | 7.0 | 6.0 | 5.0 | 4.5 | 4.0 | 2.5 | 6.5 | 4.5 |
| 10 | 12.0 | 10.5 | 6.0 | 5.0 | 6.0 | 4.0 | 5.0 | 4.5 | 4.0 | 3.0 | 6.0 | 5.0 |
| 11 | 11.0 | 10.0 | 6.0 | 5.0 | --- | --- | 5.0 | 4.0 | 4.5 | 4.0 | 8.0 | 3.0 |
| 12 | 10.0 | 9.0 | 6.5 | 6.0 | --- | --- | 4.0 | 3.0 | 6.0 | 4.5 | 4.5 | 3.5 |
| 13 | 11.0 | 10.0 | 7.5 | 6.0 | --- | --- | 3.0 | 3.0 | 7.5 | 4.0 | 6.0 | 3.5 |
| 14 | 10.5 | 10.0 | 9.5 | 7.5 | --- | --- | 5.0 | 3.0 | 6.0 | 5.0 | 8.5 | 4.0 |
| 15 | 12.0 | 10.0 | 9.0 | 7.0 | --- | --- | 7.0 | 5.0 | 5.0 | 4.5 | 7.5 | 3.5 |
| 16 | 11.0 | 10.0 | 7.0 | 6.0 | --- | --- | 8.0 | 7.0 | 6.5 | 5.0 | 9.0 | 5.0 |
| 17 | 12.0 | 11.0 | 6.0 | 3.5 | --- | --- | 7.5 | 6.5 | 6.0 | 5.0 | 9.0 | 6.5 |
| 18 | 11.0 | 9.5 | 3.5 | 2.0 | 1.5 | 0.5 | 6.5 | 5.0 | 5.5 | 4.5 | 10.0 | 7.0 |
| 19 | 11.0 | 10.0 | 2.0 | 1.5 | 1.5 | 0.5 | 5.0 | 3.5 | 5.0 | 3.5 | 8.0 | 7.0 |
| 20 | 11.0 | 9.5 | 3.0 | 2.0 | 1.5 | 1.0 | 4.0 | 2.5 | 6.0 | 3.0 | 7.5 | 5.0 |
| 21 | 10.0 | 9.0 | 4.5 | 2.5 | 2.0 | 0.5 | 3.5 | 1.5 | 5.0 | 3.0 | 8.0 | 6.0 |
| 22 | 9.5 | 8.5 | 5.0 | 4.0 | 3.5 | 2.0 | 4.0 | 3.5 | 7.5 | 3.5 | 7.0 | 5.0 |
| 23 | 9.0 | 7.0 | 7.0 | 5.0 | 4.0 | 3.5 | 5.0 | 3.0 | 7.0 | 6.0 | 6.0 | 5.0 |
| 24 | 7.0 | 5.5 | 8.0 | 5.5 | 6.5 | 4.0 | 3.0 | 2.5 | 6.0 | 4.5 | 6.5 | 5.0 |
| 25 | 7.5 | 7.0 | 6.0 | 5.0 | 6.0 | 5.0 | 4.0 | 3.0 | 6.5 | 4.0 | 9.0 | 4.5 |
| 26 | 7.0 | 7.0 | 6.5 | 6.0 | 8.0 | 5.5 | 5.0 | 4.0 | 6.0 | 3.5 | 8.5 | 5.5 |
| 27 | 8.0 | 7.0 | 6.5 | 3.5 | 6.5 | 4.5 | 7.0 | 5.0 | 5.5 | 3.5 | 8.0 | 5.5 |
| 28 | 8.0 | 7.0 | 3.5 | 1.0 | 6.0 | 5.0 | 8.0 | 6.0 | 4.5 | 3.0 | 9.0 | 5.5 |
| 29 | 8.5 | 7.5 | 1.0 | 0.0 | 8.0 | 6.0 | 7.0 | 5.5 | 4.5 | 3.0 | 8.0 | 5.5 |
| 30 | 9.0 | 8.0 | 1.5 | 0.5 | 7.0 | 5.0 | 7.0 | 6.0 | --- | --- | 9.0 | 6.5 |
| 31 | 8.0 | 7.5 | --- | --- | 5.0 | 2.5 | 6.5 | 4.5 | --- | --- | 10.0 | 5.5 |
| MONTH | 13.5 | 5.5 | 13.0 | 0.0 | --- | --- | 8.0 | 1.5 | 7.5 | 0.0 | 10.0 | 0.5 |

## 12158040 TULALIP CREEK AT TULALIP, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 11.0 | 4.5 | 20.0 | 13.5 | 15.0 | 9.5 | 17.5 | 14.5 | 17.5 | 15.0 | 17.5 | 15.0 |
| 2 | 11.5 | 4.5 | 16.0 | 13.0 | 14.5 | 10.5 | 19.5 | 14.0 | 18.5 | 15.0 | 17.5 | 14.0 |
| 3 | 13.0 | 6.0 | 14.5 | 12.0 | 15.5 | 9.5 | 17.5 | 15.5 | 17.0 | 16.0 | 17.0 | 13.5 |
| 4 | 12.5 | 6.5 | 13.0 | 11.0 | 16.5 | 10.0 | 19.0 | 15.0 | 16.5 | 14.5 | 16.5 | 14.5 |
| 5 | 13.0 | 6.5 | 16.0 | 10.5 | 17.0 | 10.0 | --- | --- | 17.0 | 15.0 | 16.0 | 14.5 |
| 6 | 13.0 | 9.0 | 17.0 | 10.0 | 16.0 | 11.5 | --- | --- | 17.0 | 15.0 | 15.0 | 13.0 |
| 7 | 11.5 | 7.0 | 18.0 | 10.5 | 16.5 | 11.0 | --- | --- | 16.5 | 15.5 | 15.0 | 12.0 |
| 8 | 10.5 | 9.5 | 19.0 | 12.0 | 15.5 | 12.5 | --- | --- | 16.0 | 15.0 | 15.0 | 11.0 |
| 9 | 15.0 | 8.0 | 20.0 | 12.0 | 17.0 | 12.5 | --- | --- | 17.5 | 15.0 | 15.0 | 11.0 |
| 10 | 16.0 | 10.0 | 17.5 | 13.0 | 15.0 | 13.0 | --- | --- | 18.5 | 14.5 | 14.0 | 11.5 |
| 11 | 13.5 | 10.0 | 17.0 | 11.5 | 14.0 | 12.0 | --- | --- | 18.5 | 15.0 | 13.5 | 11.5 |
| 12 | 12.0 | 8.0 | 15.0 | 11.5 | 12.5 | 11.5 | --- | --- | 18.5 | 15.0 | 15.5 | 12.5 |
| 13 | 13.5 | 8.0 | 13.5 | 11.0 | 16.0 | 10.5 | 18.5 | 13.5 | 17.5 | 16.0 | 15.0 | 12.0 |
| 14 | 9.5 | 7.0 | 15.5 | 9.0 | 17.0 | 10.0 | 19.5 | 14.0 | 18.5 | 15.0 | 14.5 | 14.0 |
| 15 | 8.5 | 6.0 | 18.0 | 10.0 | 15.0 | 13.0 | 20.5 | 14.5 | 17.5 | 15.0 | 14.0 | 11.5 |
| 16 | 11.5 | 5.5 | 16.0 | 11.5 | 15.0 | 12.5 | 20.0 | 15.0 | 16.0 | 14.5 | 14.0 | 12.0 |
| 17 | 9.0 | 7.5 | 16.5 | 10.5 | 19.0 | 11.5 | 18.5 | 15.0 | 17.5 | 14.5 | 14.0 | 13.5 |
| 18 | 11.5 | 7.0 | 17.0 | 9.5 | 20.0 | 13.0 | 18.5 | 13.5 | 17.5 | 14.5 | 16.0 | 13.5 |
| 19 | 11.5 | 8.5 | 15.5 | 11.0 | 17.5 | 13.5 | 19.0 | 13.5 | 16.5 | 14.0 | 16.5 | 13.0 |
| 20 | 12.0 | 8.0 | 15.5 | 11.5 | 17.5 | 12.0 | 18.5 | 16.0 | 17.0 | 14.0 | 16.5 | 13.0 |
| 21 | 13.0 | 7.5 | 17.5 | 10.5 | 16.0 | 13.0 | 16.5 | 15.0 | 17.0 | 13.0 | 15.5 | 13.5 |
| 22 | 13.5 | 8.0 | 15.5 | 11.5 | 18.0 | 13.0 | 15.5 | 13.5 | 15.0 | 13.5 | 15.0 | 14.5 |
| 23 | 10.5 | 8.5 | 16.5 | 11.5 | 15.5 | 13.5 | 19.0 | 14.0 | 15.0 | 14.0 | 14.5 | 14.0 |
| 24 | 11.0 | 9.0 | 14.5 | 12.0 | 15.0 | 13.0 | 19.5 | 15.5 | 16.5 | 14.5 | 15.5 | 13.0 |
| 25 | 14.0 | 8.0 | 15.0 | 10.5 | 17.0 | 11.5 | 19.5 | 14.5 | 16.0 | 14.0 | 15.5 | 12.5 |
| 26 | 14.5 | 8.0 | 16.0 | 11.5 | 18.0 | 12.5 | 16.5 | 15.0 | 16.5 | 13.0 | 15.5 | 12.5 |
| 27 | 15.5 | 9.0 | 15.0 | 11.0 | 19.0 | 12.5 | 18.0 | 13.0 | 15.5 | 14.5 | 15.5 | 12.5 |
| 28 | 17.0 | 10.5 | 13.0 | 10.0 | 19.0 | 13.5 | 18.5 | 13.5 | 19.0 | 15.0 | 16.0 | 13.5 |
| 29 | 18.5 | 11.5 | 11.5 | 10.0 | 17.0 | 15.0 | 17.0 | 15.5 | 18.0 | 15.0 | 15.5 | 13.0 |
| 30 | 18.5 | 12.5 | 13.5 | 9.0 | 18.0 | 14.5 | 18.5 | 14.0 | 18.0 | 14.5 | 14.0 | 12.5 |
| 31 | --- | --- | 11.5 | 9.5 | --- | --- | 19.5 | 15.5 | 18.0 | 15.0 | --- | --- |
| MONTH | 18.5 | 4.5 | 20.0 | 9.0 | 20.0 | 9.5 | --- | --- | 19.0 | 13.0 | 17.5 | 11.0 |

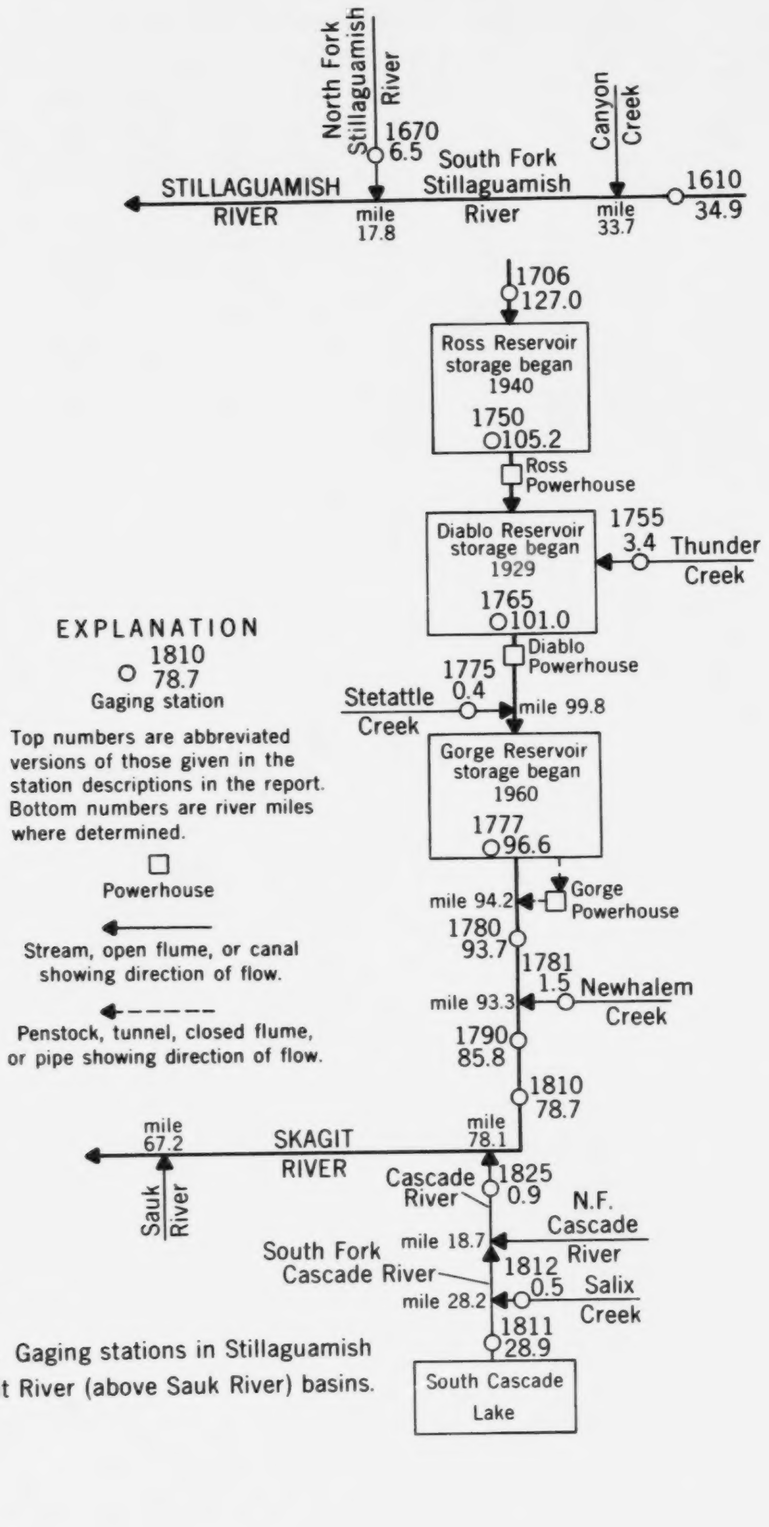
North Fork Stillaguamish River
1670
6.5
Canyon Creek
South Fork Stillaguamish River
1610
34.9
STILLAGUAMISH RIVER
mile 17.8
mile 33.7
1706
127.0
Ross Reservoir storage began 1940
1750
105.2
Ross Powerhouse
Diablo Reservoir storage began 1929
1765
101.0
1755
3.4
Thunder Creek
Diablo Powerhouse
1775
0.4
Stetattle Creek
mile 99.8
Gorge Reservoir storage began 1960
1777
96.6
Gorge Powerhouse
mile 94.2
1780
93.7
1781
1.5
Newhalem Creek
mile 93.3
1790
85.8
1810
78.7
mile 78.1
mile 67.2
SKAGIT RIVER
Sauk River
Cascade River
1825
0.9
N.F. Cascade River
mile 18.7
South Fork Cascade River
1812
0.5
Salix Creek
mile 28.2
1811
28.9
South Cascade Lake
EXPLANATION
1810
78.7
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 15. Gaging stations in Stillaguamish and Skagit River (above Sauk River) basins.

## 12161000 SOUTH FORK STILLAGUAMISH RIVER NEAR GRANITE FALLS, WA

LOCATION.--Lat 48°06'13", long 121°56'37", in SW¼NW¼ sec.8, T.30 N., R.7 E., Snohomish County, Hydrologic Unit 17110008, on right bank 0.3 mi (0.5 km) upstream from county road bridge, 1.2 mi (1.9 km) upstream from Canyon Creek, 1.6 mi (2.6 km) northeast of Granite Falls, and at mile 34.9 (56.2 km).

DRAINAGE AREA.--119 mi² (308 km²).

PERIOD OF RECORD.-- December 1902 to July 1903 (gage heights only), July 1928 to current year. Published as "at Robe" 1902-3. Chemical analyses July 1959 to September 1966, October 1973 to September 1974.

REVISED RECORDS.--WSP 902: 1939. WSP 1286: 1929-31(M), 1932, 1935, 1937(M), 1939(P), 1940-41(M), 1943(P), 1947(P). WSP 1736: 1932-35(M), 1944(M), 1946-48(M), 1951(M), 1957(M). WSP 1932: 1938(P), 1945(P), 1950(P), 1956(P), 1959(P).

GAGE.--Water-stage recorder. Altitude of gage is 310 ft (94 m), from river-profile map. Prior to Aug. 31, 1928, nonrecording gage at site 8 mi (13 km) upstream at different datum. Aug. 31 to Sept. 30, 1928, nonrecording gage at present site and datum.

REMARKS.--Records excellent. Some small diversion for domestic use above station. No regulation.

AVERAGE DISCHARGE.--48 years, 1,086 ft³/s (30.76 m³/s) 123.93 in/yr (3,148 mm/yr) 786,800 acre-ft/yr (970 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,400 ft³/s (918 m³/s) Feb. 26, 1932, gage height, 19.7 ft (6.00 m), from graph based on gage readings, from rating curve extended above 21,000 ft³/s (595 m³/s); minimum, 55 ft³/s (1.56 m³/s) Sept. 23, 24, 1938; minimum gage height, 2.99 ft (0.911 m) Aug. 19-21, 1941.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,700 ft³/s (246 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 2400 | 9,000 | 255 | 10.50 | 3.200 | Nov. 24 | 1000 | 12,900 | 365 | 12.41 | 3.783 |
| Oct. 30 | 0345 | 9,420 | 267 | 10.71 | 3.264 | Dec. 2 | 0730 | *23,600 | 668 | *16.71 | 5.093 |
| Nov. 2 | 1845 | 10,700 | 303 | 11.34 | 3.456 | Dec. 26 | 1445 | 10,600 | 300 | 11.30 | 3.444 |
| Nov. 15 | 0600 | 11,100 | 314 | 11.57 | 3.527 | Jan. 15 | 1645 | 12,800 | 362 | 12.38 | 3.773 |

Minimum discharge, 114 ft³/s (3.23 m³/s) Oct. 2, gage height, 3.27 ft (0.997 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 118 | 2790 | 9080 | 1130 | 900 | 439 | 724 | 2190 | 1410 | 1350 | 563 | 448 |
| 2 | 116 | 6440 | 17900 | 904 | 800 | 389 | 610 | 3250 | 1300 | 1240 | 530 | 416 |
| 3 | 200 | 4880 | 14700 | 855 | 720 | 365 | 580 | 2170 | 1040 | 1130 | 563 | 365 |
| 4 | 880 | 2380 | 11300 | 3470 | 650 | 333 | 640 | 1650 | 862 | 1440 | 505 | 333 |
| 5 | 1160 | 1920 | 2400 | 2470 | 600 | 325 | 808 | 1720 | 834 | 1350 | 466 | 530 |
| 6 | 1260 | 2200 | 1690 | 1380 | 560 | 317 | 1400 | 1490 | 960 | 1390 | 466 | 1420 |
| 7 | 640 | 2600 | 1500 | 1130 | 530 | 313 | 1220 | 1620 | 1140 | 1430 | 574 | 1090 |
| 8 | 880 | 1820 | 5160 | 1370 | 510 | 309 | 1820 | 2310 | 1320 | 2430 | 688 | 652 |
| 9 | 606 | 1230 | 2690 | 1090 | 500 | 317 | 1810 | 2440 | 1260 | 1480 | 515 | 490 |
| 10 | 671 | 929 | 1770 | 1320 | 490 | 552 | 1540 | 2640 | 1370 | 1120 | 448 | 412 |
| 11 | 555 | 819 | 1270 | 1690 | 540 | 694 | 1790 | 3390 | 1200 | 988 | 461 | 369 |
| 12 | 417 | 762 | 1000 | 1050 | 1700 | 495 | 1410 | 2020 | 1490 | 918 | 470 | 448 |
| 13 | 351 | 825 | 876 | 820 | 1300 | 448 | 1110 | 1860 | 1400 | 820 | 452 | 416 |
| 14 | 459 | 5300 | 760 | 2760 | 1000 | 398 | 1010 | 1670 | 1000 | 796 | 421 | 552 |
| 15 | 2500 | 6430 | 911 | 11000 | 910 | 381 | 1020 | 1450 | 1400 | 890 | 480 | 525 |
| 16 | 1720 | 2350 | 760 | 6160 | 1500 | 381 | 814 | 1690 | 2890 | 1050 | 1100 | 412 |
| 17 | 4610 | 1460 | 640 | 2910 | 1590 | 790 | 778 | 1850 | 1850 | 1050 | 730 | 369 |
| 18 | 4400 | 1030 | 592 | 2130 | 1270 | 1970 | 778 | 1290 | 1910 | 904 | 552 | 341 |
| 19 | 3610 | 836 | 586 | 1420 | 890 | 1290 | 736 | 1150 | 1900 | 760 | 541 | 317 |
| 20 | 3400 | 712 | 580 | 1130 | 712 | 953 | 1530 | 1270 | 1470 | 760 | 1770 | 301 |
| 21 | 1820 | 628 | 541 | 981 | 604 | 869 | 1040 | 1140 | 1300 | 706 | 925 | 287 |
| 22 | 1290 | 677 | 563 | 1090 | 541 | 1340 | 820 | 1200 | 1170 | 598 | 622 | 280 |
| 23 | 943 | 4570 | 790 | 1180 | 646 | 1090 | 724 | 1130 | 1050 | 610 | 510 | 270 |
| 24 | 743 | 8070 | 3950 | 890 | 724 | 1860 | 1270 | 1230 | 1250 | 802 | 457 | 260 |
| 25 | 1620 | 2640 | 2190 | 760 | 670 | 1660 | 1140 | 1780 | 1650 | 754 | 712 | 244 |
| 26 | 1970 | 3940 | 7680 | 700 | 563 | 1050 | 911 | 1370 | 1170 | 754 | 1350 | 235 |
| 27 | 1940 | 1920 | 3510 | 2800 | 558 | 869 | 876 | 2630 | 960 | 616 | 876 | 229 |
| 28 | 1640 | 1210 | 1780 | 1800 | 552 | 802 | 1050 | 1900 | 1100 | 547 | 736 | 220 |
| 29 | 4290 | 901 | 3250 | 1400 | 495 | 694 | 1280 | 1310 | 1340 | 604 | 616 | 217 |
| 30 | 6730 | 1840 | 3030 | 1200 | --- | 676 | 1640 | 1390 | 1200 | 552 | 530 | 208 |
| 31 | 2230 | --- | 1580 | 1000 | --- | 925 | --- | 1180 | --- | 541 | 485 | --- |
| TOTAL | 53769 | 74109 | 105429 | 59990 | 23025 | 23294 | 32879 | 55380 | 40196 | 30380 | 20114 | 12656 |
| MEAN | 1734 | 2470 | 3401 | 1935 | 794 | 751 | 1096 | 1786 | 1340 | 980 | 649 | 422 |
| MAX | 6730 | 8070 | 17900 | 11000 | 1700 | 1970 | 1820 | 3390 | 2890 | 2430 | 1770 | 1420 |
| MIN | 116 | 628 | 541 | 700 | 490 | 309 | 580 | 1130 | 834 | 541 | 421 | 208 |
| CFSM | 14.6 | 20.8 | 28.6 | 16.3 | 6.67 | 6.31 | 9.21 | 15.0 | 11.3 | 8.24 | 5.45 | 3.55 |
| IN. | 16.81 | 23.17 | 32.96 | 18.75 | 7.20 | 7.28 | 10.28 | 17.31 | 12.57 | 9.50 | 6.29 | 3.96 |
| AC-FT | 106700 | 147000 | 209100 | 119000 | 45670 | 46200 | 65220 | 109800 | 79730 | 60260 | 39900 | 25100 |

CAL YR 1975 TOTAL 478179 MEAN 1310 MAX 17900 MIN 116 CFSM 11.0 IN 149.48 AC-FT 948500
WTR YR 1976 TOTAL 531221 MEAN 1451 MAX 17900 MIN 116 CFSM 12.2 IN 166.06 AC-FT 1054000

## 12167000 NORTH FORK STILLAGUAMISH RIVER NEAR ARLINGTON, WA

LOCATION.--Lat 48°15'42", long 122°02'47", in SE¼NW¼ sec.16, T.32 N., R.6 E., Snohomish County, Hydrologic Unit 17110008, on right bank 5.7 mi (9.2 km) northeast of Arlington, 7.8 mi (12.6 km) downstream from Deer Creek, and at mile 6.5 (10.5 km).

DRAINAGE AREA.--262 mi² (679 km²).

PERIOD OF RECORD.--July 1928 to current year. Chemical analyses November 1961 to September 1971, October 1973 to September 1974.

REVISED RECORDS.--WSP 1286: 1938-39. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 89.34 ft (27.231 m) above mean sea level.

REMARKS.--Records good. No regulation. Small diversions for domestic use.

AVERAGE DISCHARGE.--48 years, 1,913 ft³/s (54.18 m³/s) 99.15 in/yr (2,518 mm/yr), 1,386,000 acre-ft/yr (1,709 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,600 ft³/s (867 m³/s) Feb. 9, 1951; maximum gage height, 13.46 ft (4.103 m) Feb. 10, 11, 1951; minimum discharge, 117 ft³/s (3.31 m³/s) Sept. 23, 1938; minimum gage height 0.97 ft (0.296 m) Sept. 10, 12, 1944.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 13,000 ft³/s (368 m³/s) and maximum (*) from high-water mark in well:

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 2400 | 21,000 | 595 | 10.49 | 3.197 | Nov. 24 | 1100 | 23,300 | 660 | 11.06 | 3.371 |
| Oct. 30 | 0700 | 21,100 | 598 | 10.52 | 3.206 | Dec. 2 | unknown | *29,700 | 841 | *13.38 | 4.078 |
| Nov. 2 | 2100 | 19,400 | 549 | 10.10 | 3.078 | Dec. 26 | 1300 | 19,300 | 547 | 11.30 | 3.444 |
| Nov. 15 | 0800 | 19,100 | 541 | 10.03 | 3.057 | Jan. 15 | 1900 | 23,600 | 668 | 11.70 | 3.566 |

Minimum discharge, 235 ft³/s (6.66 m³/s) Oct. 1, 2, 3, gage height, 2.19 ft (0.668 m).

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 240 | 4830 | 8900 | 2490 | 2310 | 1250 | 1800 | 4100 | 3060 | 1780 | 700 | 544 |
| 2 | 235 | 9560 | 25000 | 2030 | 2140 | 1130 | 1450 | 5280 | 2250 | 1650 | 670 | 518 |
| 3 | 319 | 11400 | 20500 | 1860 | 1930 | 1060 | 1450 | 3680 | 1900 | 1600 | 700 | 463 |
| 4 | 651 | 5950 | 16000 | 4740 | 1660 | 979 | 1500 | 3030 | 1660 | 2130 | 647 | 423 |
| 5 | 2840 | 4550 | 6280 | 5320 | 1470 | 943 | 1700 | 3240 | 1600 | 2040 | 612 | 1100 |
| 6 | 2840 | 4690 | 4140 | 3110 | 1380 | 916 | 3600 | 2870 | 1760 | 2010 | 584 | 1700 |
| 7 | 1090 | 5590 | 3450 | 2430 | 1300 | 898 | 3000 | 3000 | 2000 | 2030 | 647 | 1400 |
| 8 | 903 | 4220 | 8730 | 3420 | 1240 | 880 | 4300 | 4060 | 2280 | 2740 | 916 | 1070 |
| 9 | 826 | 3080 | 6480 | 2540 | 1220 | 889 | 4500 | 4240 | 2140 | 2070 | 715 | 898 |
| 10 | 1190 | 2300 | 4360 | 2460 | 1170 | 1400 | 3900 | 4520 | 2270 | 1620 | 619 | 795 |
| 11 | 851 | 1880 | 3220 | 3320 | 1320 | 1670 | 4200 | 4700 | 2000 | 1460 | 584 | 723 |
| 12 | 666 | 1740 | 2600 | 2400 | 4400 | 1240 | 3300 | 3370 | 2200 | 1330 | 557 | 731 |
| 13 | 576 | 1930 | 2280 | 1900 | 2920 | 1120 | 2500 | 3170 | 2080 | 1190 | 544 | 685 |
| 14 | 548 | 10400 | 2020 | 4250 | 2600 | 1010 | 2550 | 2920 | 1620 | 1140 | 537 | 907 |
| 15 | 3370 | 12800 | 2100 | 18400 | 2800 | 961 | 2600 | 2550 | 2250 | 1200 | 584 | 1090 |
| 16 | 2570 | 5100 | 1840 | 13800 | 4560 | 961 | 2300 | 2960 | 4740 | 1350 | 1240 | 820 |
| 17 | 12600 | 3340 | 1640 | 6900 | 4100 | 1490 | 2200 | 3080 | 3060 | 1370 | 908 | 731 |
| 18 | 10800 | 2420 | 1550 | 5200 | 3500 | 3530 | 2100 | 2240 | 3080 | 1230 | 692 | 685 |
| 19 | 6910 | 1940 | 1510 | 3760 | 2700 | 2790 | 2000 | 2060 | 3190 | 1070 | 662 | 640 |
| 20 | 5720 | 1640 | 1480 | 3000 | 2130 | 2140 | 3900 | 2240 | 2500 | 1060 | 2470 | 605 |
| 21 | 3250 | 1440 | 1410 | 2630 | 1800 | 1900 | 2300 | 2040 | 2180 | 1010 | 1220 | 577 |
| 22 | 2560 | 1390 | 1470 | 2710 | 1600 | 2960 | 1900 | 2150 | 1970 | 889 | 837 | 550 |
| 23 | 1950 | 7640 | 1800 | 2920 | 1750 | 2800 | 1700 | 2040 | 1790 | 907 | 700 | 544 |
| 24 | 1590 | 15400 | 5040 | 2310 | 1790 | 3370 | 2800 | 2040 | 1650 | 1030 | 670 | 524 |
| 25 | 3270 | 5510 | 3760 | 2080 | 1670 | 4240 | 2500 | 2870 | 1780 | 970 | 900 | 499 |
| 26 | 3790 | 7220 | 13400 | 1850 | 1520 | 2740 | 2250 | 2320 | 1560 | 943 | 1190 | 475 |
| 27 | 3940 | 3840 | 6900 | 7400 | 1450 | 2290 | 2000 | 4220 | 1410 | 837 | 941 | 451 |
| 28 | 3170 | 2380 | 3780 | 4780 | 1490 | 2150 | 2290 | 3600 | 1620 | 747 | 911 | 440 |
| 29 | 7630 | 1740 | 5000 | 3680 | 1380 | 1850 | 2530 | 2480 | 1940 | 771 | 794 | 420 |
| 30 | 15600 | 2460 | 5770 | 2960 | --- | 1790 | 3150 | 2350 | 1790 | 739 | 695 | 418 |
| 31 | 5460 | --- | 3360 | 2520 | --- | 2690 | --- | 2000 | --- | 700 | 591 | --- |
| TOTAL | 107955 | 148380 | 175770 | 129170 | 61300 | 56037 | 78270 | 95420 | 65410 | 41613 | 25037 | 21564 |
| MEAN | 3482 | 4946 | 5670 | 4167 | 2114 | 1808 | 2609 | 3078 | 2180 | 1342 | 808 | 719 |
| MAX | 15600 | 15400 | 25000 | 18400 | 4560 | 4240 | 4500 | 5280 | 4740 | 2740 | 2470 | 1700 |
| MIN | 235 | 1390 | 1410 | 1850 | 1170 | 880 | 1450 | 2000 | 1410 | 700 | 537 | 418 |
| CFSM | 13.3 | 18.9 | 21.6 | 15.9 | 8.07 | 6.90 | 9.96 | 11.7 | 8.32 | 5.12 | 3.08 | 2.74 |
| IN. | 15.33 | 21.07 | 24.96 | 18.34 | 8.70 | 7.96 | 11.11 | 13.55 | 9.29 | 5.91 | 3.55 | 3.06 |
| AC-FT | 214100 | 294300 | 348600 | 256200 | 121600 | 111100 | 155200 | 189300 | 129700 | 82540 | 49660 | 42770 |

CAL YR 1975 TOTAL 899689 MEAN 2465 MAX 25000 MIN 235 CFSM 9.41 IN 127.74 AC-FT 1785000
WTR YR 1976 TOTAL 1005926 MEAN 2748 MAX 25000 MIN 235 CFSM 10.5 IN 142.83 AC-FT 1995000

NOTE.--No gage-height record Dec. 1-4.

## 12170600 SKAGIT RIVER AT INTERNATIONAL BOUNDARY, NEAR HOPE, BRITISH COLUMBIA
(International gaging station)

LOCATION.--Lat 49°00'01", long 121°04'15", on left bank at international boundary, approximately 31 mi (50 km) southeast of Hope, and at mile 127.0 (204.3 km).

DRAINGE AREA.--381 mi² (987 km²), of which 3 mi² (7.8 km²) is in the United States.

PERIOD OF RECORD.--December 1953 to current year (gage heights or elevations only).

GAGE.--Water-stage recorder. Datum of gage is 1,583.44 ft (482.633 m) above mean sea level, U.S. Coast and Geodetic Survey datum of 1929, supplementary adjustment of 1947; 1,582.53 ft (482.355 m) above Geodetic Survey of Canada 1959 datum; 1,584.07 ft (482.825 m) above city of Seattle 1936 datum; and 1,581.65 ft (482.087 m) above city of Seattle Ross Dam datum (by water level transfer in 1955). Prior to Apr. 15, 1955, nonrecording gage at present site and datum. Apr. 15, 1955 to Dec. 6, 1960, water-stage recorder at site 300 ft (91 m) upstream at present datum.

REMARKS.--No diversion above station. Stage subject to backwater from Ross Reservoir. Starting about July 1, 1967, the taintor gates at Ross Dam were extended to elevation, 1,602.50 ft (488.442 m) city of Seattle Ross Dam datum.

COOPERATION.--This station is maintained by Canada under agreement with the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 21.44 ft (6.535 m) Aug. 24, 1976; minimum observed, 1.25 ft (0.381 m) Mar. 5, 1955.

EXTREMES FOR CURRENT YEAR.-- Maximum gage height, 21.44 ft (6.535 m) Aug. 24; minimum observed, 4.31 ft (1.314 m) Mar. 30.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19.29 | 17.36 | 10.91 | 9.11 | 6.42 | --- | --- | 6.10 | 6.58 | 11.93 | 20.79 | 20.53 |
| 2 | 19.31 | 17.42 | 11.49 | 9.11 | 6.36 | --- | --- | 6.67 | 6.37 | 12.20 | 20.31 | 20.48 |
| 3 | 19.29 | 17.55 | 14.06 | 9.16 | 6.24 | --- | --- | 6.83 | 6.15 | 12.84 | 20.21 | 20.30 |
| 4 | 19.37 | 17.66 | 17.65 | 9.06 | 6.05 | --- | --- | 6.89 | 6.00 | 13.61 | 20.46 | 20.28 |
| 5 | 19.57 | 17.91 | 18.97 | 8.87 | 5.85 | --- | --- | 6.89 | 5.94 | 14.71 | 20.70 | 20.36 |
| 6 | 19.67 | 17.86 | 17.54 | 8.56 | 5.74 | --- | --- | 6.81 | 6.00 | 15.94 | 20.65 | 20.50 |
| 7 | 19.67 | 17.58 | 15.17 | 8.07 | 5.66 | --- | --- | 6.87 | 6.22 | 17.37 | 20.44 | 20.51 |
| 8 | 19.70 | 17.10 | 12.55 | 7.66 | 5.56 | --- | --- | 7.23 | 6.73 | 18.76 | 20.40 | 20.35 |
| 9 | 19.69 | 16.47 | 10.38 | 7.22 | 5.46 | --- | --- | 7.66 | 7.20 | 19.79 | 20.25 | 19.95 |
| 10 | 19.43 | 15.97 | 10.16 | 6.94 | 5.32 | --- | --- | 7.86 | 7.41 | 19.64 | 20.11 | 19.64 |
| 11 | 19.09 | 15.80 | 10.14 | 6.76 | 5.23 | --- | --- | 7.95 | 7.37 | 19.33 | 20.28 | 19.60 |
| 12 | 18.94 | 15.69 | 10.17 | 6.53 | 5.21 | --- | --- | 7.68 | 7.16 | 19.48 | 20.55 | 19.60 |
| 13 | 18.68 | 15.58 | 10.12 | 6.24 | 5.12 | --- | --- | 7.56 | 6.92 | 19.54 | 20.59 | 19.40 |
| 14 | 18.45 | 15.55 | 10.12 | 6.02 | 5.08 | --- | --- | 7.63 | 6.71 | 19.44 | 20.55 | 19.12 |
| 15 | 18.34 | 16.31 | 9.99 | 6.04 | 5.04 | --- | --- | 7.49 | 6.76 | 19.21 | 20.88 | 18.91 |
| 16 | 18.34 | 17.00 | 9.83 | 6.18 | 5.04 | --- | --- | 7.50 | 7.33 | 19.18 | 21.00 | 18.63 |
| 17 | 18.95 | 16.86 | 9.56 | 6.37 | 5.13 | --- | --- | 7.78 | 7.70 | 19.67 | 20.91 | 18.46 |
| 18 | 19.39 | 16.37 | 9.29 | 6.55 | 5.16 | --- | --- | 7.67 | 7.89 | 19.78 | 20.63 | 18.46 |
| 19 | 20.22 | 15.74 | 9.01 | 6.51 | 5.12 | --- | --- | --- | 8.17 | 19.74 | 20.49 | 18.56 |
| 20 | 20.28 | 15.00 | 8.68 | 6.23 | 5.08 | --- | --- | 7.14 | 8.19 | 19.73 | 20.59 | 18.60 |
| 21 | 20.06 | 14.42 | 8.38 | 6.12 | --- | --- | --- | 7.08 | 7.92 | 19.71 | 20.80 | 18.61 |
| 22 | 19.57 | 13.87 | 8.13 | 6.14 | --- | --- | --- | 7.08 | 7.84 | 19.54 | 21.02 | 18.70 |
| 23 | 19.12 | 13.35 | 7.89 | 6.10 | --- | --- | --- | 7.34 | 8.03 | 19.37 | 21.22 | 18.87 |
| 24 | 18.75 | 13.10 | 7.79 | 5.99 | --- | --- | --- | 7.33 | 8.45 | 19.37 | 21.12 | 19.10 |
| 25 | 18.45 | 12.86 | 7.75 | 5.86 | --- | 4.43 | 4.87 | 7.20 | 8.80 | 19.38 | 20.61 | 19.27 |
| 26 | 17.99 | 12.58 | 7.87 | 5.71 | --- | 4.46 | 4.85 | 7.05 | 9.27 | 19.33 | 20.43 | 19.39 |
| 27 | 17.66 | 12.25 | 8.13 | 5.93 | --- | 4.44 | 4.87 | 7.44 | 9.87 | 19.51 | 20.44 | 19.53 |
| 28 | 17.45 | 11.96 | 8.28 | 6.11 | --- | --- | 5.01 | 7.81 | 10.34 | 20.01 | 20.40 | 19.75 |
| 29 | 17.42 | 11.53 | 8.45 | 6.17 | --- | --- | 5.20 | 7.45 | 10.72 | 20.67 | 20.28 | 19.97 |
| 30 | 17.49 | 11.12 | 8.89 | 6.25 | --- | 4.31 | 5.63 | 7.14 | 11.44 | 20.93 | 20.17 | 19.99 |
| 31 | 17.45 | --- | 9.08 | 6.33 | --- | --- | --- | 6.83 | --- | 20.88 | 20.34 | --- |
| MEAN | 18.94 | 15.33 | 10.53 | 6.90 | --- | --- | --- | --- | 7.72 | 18.41 | 20.57 | 19.51 |
| MAX | 20.28 | 17.91 | 18.97 | 9.16 | --- | --- | --- | --- | 11.44 | 20.93 | 21.22 | 20.53 |
| MIN | 17.42 | 11.12 | 7.75 | 5.71 | --- | --- | --- | --- | 5.94 | 11.93 | 20.11 | 18.46 |

## 12175000 ROSS RESERVOIR NEAR NEWHALEM, WA
(International gaging station)

LOCATION.--Lat 48°43'58", long 121°04'02", in SE¼ sec.35, T.38 N., R.13 E., Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, at Ross Dam on Skagit River 1.0 mi (1.6 km) downstream from Ruby Creek, 9.1 mi (14.5 km) northeast of Newhalem, and at mile 105.2 (169.3 km).

DRAINAGE AREA.--999 $mi^2$ (2,587 $km^2$), of which 400 $mi^2$ (1,036 $km^2$) is in Canada.

PERIOD OF RECORD.--March 1940 to current year (monthend elevations and contents only prior to October 1946). Prior to October 1945, published as Ruby Reservoir near Newhalem.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (city of Seattle Ross Dam datum); 1.79 ft (0.546 m) above mean sea level, U.S. Coast and Geodetic Survey datum; and 0.88 ft (0.268 m) above mean sea level, Geodetic Survey of Canada 1959 datum (by water level transfer of elevation from the international boundary). Prior to Sept. 24, 1940, nonrecording gage on west shore at site just uplake from Ross Dam at same datum. Sept. 24, 1940, to June 28, 1943, water-stage recorder at present site and datum. June 29, 1943, to Apr. 29, 1948, nonrecording gage on right bank at site 500 ft (152 m) uplake from dam at present datum.

REMARKS.--Reservoir is formed by concrete arch dam completed to elevation 1,615 ft (492.3 m) in 1949, storage began Mar. 11, 1940. Starting about July 1, 1957, taintor gates were extended to elevation, 1,602.50 ft (488.44 m). Usable storage, 1,052,300 acre-ft (1,300 $hm^3$) between elevations 1,475 ft (449.6 m), lower limit of operation, and 1,602.5 ft (488.44 m), top of taintor gates. Dead storage below elevation, 1,250 ft (381 m), 1,175 acre-ft (1.45 $hm^3$). Water used for power and to supplement low flow of Skagit River through city of Seattle's Diablo and Gorge powerplants. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by city of Seattle. This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,441,180 acre-ft (1,780 $hm^3$) Aug. 24, 1976, elevation, 1,603.04 ft (488.607 m); minimum observed since dam was completed in 1949, 51,760 acre-ft (63.8 $hm^3$) Apr. 5, 1952, elevation, 1,348.50 ft (411.023 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,441,180 acre-ft; (1,780 $hm^3$) Aug. 24, elevation, 1,603.04 ft (488.607 m); minimum, 740,600 acre-ft (913 $hm^3$) Apr. 30, elevation, 1,532.77 ft (467.188 m).

Capacity table (elevation, in feet, and total contents, in acre-feet)
(Based on 25-foot contour intervals furnished by City of Seattle in 1943)

| | | | | | |
|---|---|---|---|---|---|
| 1,474 | 378,000 | 1,525 | 679,000 | 1,575 | 1,130,200 |
| 1,500 | 509,200 | 1,550 | 888,300 | 1,603 | 1,440,700 |

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1600.97 | 1599.03 | 1592.68 | 1590.60 | 1587.28 | 1574.03 | 1545.89 | 1533.91 | 1564.96 | 1593.50 | 1602.19 | 1602.20 |
| 2 | 1600.91 | 1599.13 | 1594.02 | 1590.72 | 1587.09 | 1573.24 | 1545.18 | 1535.19 | 1564.96 | 1593.96 | 1601.70 | 1602.09 |
| 3 | 1600.91 | 1599.16 | 1597.39 | 1590.61 | 1586.86 | 1572.34 | 1544.44 | 1536.26 | 1564.77 | 1594.73 | 1601.89 | 1601.91 |
| 4 | 1601.09 | 1599.43 | 1600.68 | 1590.48 | 1586.28 | 1571.54 | 1543.89 | 1537.01 | 1564.79 | 1595.54 | 1602.20 | 1601.98 |
| 5 | 1601.29 | 1599.61 | 1600.40 | 1590.29 | 1585.78 | 1570.86 | 1542.95 | 1537.44 | 1564.71 | 1596.83 | 1602.34 | 1602.05 |
| 6 | 1601.37 | 1599.44 | 1598.24 | 1589.74 | 1585.37 | 1569.89 | 1542.29 | 1538.12 | 1564.99 | 1598.11 | 1602.04 | 1602.12 |
| 7 | 1601.35 | 1599.06 | 1595.69 | 1589.23 | 1585.05 | 1568.90 | 1541.39 | 1539.07 | 1565.46 | 1599.48 | 1601.98 | 1602.18 |
| 8 | 1601.37 | 1598.52 | 1592.86 | 1588.76 | 1584.82 | 1567.80 | 1541.02 | 1541.34 | 1566.13 | 1601.10 | 1601.98 | 1601.83 |
| 9 | 1601.30 | 1597.94 | 1591.57 | 1588.26 | 1584.25 | 1566.82 | 1540.94 | 1543.94 | 1567.40 | 1601.48 | 1601.75 | 1601.43 |
| 10 | 1600.87 | 1597.53 | 1591.67 | 1588.17 | 1583.44 | 1565.88 | 1540.91 | 1546.31 | 1568.93 | 1601.11 | 1601.68 | 1601.18 |
| 11 | 1600.65 | 1597.38 | 1591.71 | 1587.93 | 1582.80 | 1564.96 | 1541.10 | 1547.88 | 1569.84 | 1601.00 | 1602.07 | 1601.26 |
| 12 | 1600.48 | 1597.19 | 1591.66 | 1587.52 | 1582.42 | 1563.86 | 1541.01 | 1549.13 | 1570.90 | 1601.05 | 1602.23 | 1601.19 |
| 13 | 1600.18 | 1597.15 | 1591.67 | 1587.10 | 1582.02 | 1562.90 | 1540.99 | 1550.02 | 1571.82 | 1601.26 | 1602.12 | 1600.89 |
| 14 | 1599.99 | 1597.41 | 1591.50 | 1587.08 | 1581.81 | 1562.27 | 1540.38 | 1551.20 | 1572.29 | 1600.94 | 1602.22 | 1600.65 |
| 15 | 1599.95 | 1598.55 | 1591.50 | 1587.15 | 1581.52 | 1561.41 | 1539.85 | 1552.91 | 1573.19 | 1600.71 | 1602.63 | 1600.40 |
| 16 | 1600.11 | 1598.79 | 1591.27 | 1587.20 | 1581.48 | 1560.78 | 1540.12 | 1554.88 | 1574.84 | 1600.84 | 1602.67 | 1600.16 |
| 17 | 1601.21 | 1598.40 | 1590.94 | 1587.55 | 1581.37 | 1560.01 | 1540.26 | 1556.82 | 1576.83 | 1601.49 | 1602.47 | 1600.02 |
| 18 | 1601.77 | 1597.82 | 1590.69 | 1587.74 | 1580.94 | 1559.04 | 1539.99 | 1558.26 | 1579.15 | 1601.36 | 1602.05 | 1600.12 |
| 19 | 1602.00 | 1597.18 | 1590.34 | 1587.32 | 1580.67 | 1558.21 | 1538.71 | 1559.11 | 1581.91 | 1601.32 | 1602.02 | 1600.24 |
| 20 | 1601.94 | 1596.42 | 1589.93 | 1587.00 | 1580.38 | 1557.77 | 1537.75 | 1559.54 | 1584.46 | 1601.36 | 1602.32 | 1600.19 |
| 21 | 1601.57 | 1595.85 | 1589.65 | 1587.00 | 1580.05 | 1557.15 | 1537.53 | 1560.38 | 1586.35 | 1601.37 | 1602.50 | 1600.26 |
| 22 | 1601.00 | 1595.20 | 1589.40 | 1586.94 | 1579.60 | 1556.05 | 1536.41 | 1560.53 | 1587.76 | 1601.04 | 1602.73 | 1600.39 |
| 23 | 1600.63 | 1594.76 | 1589.21 | 1586.80 | 1579.16 | 1555.07 | 1535.84 | 1561.07 | 1588.96 | 1601.00 | 1602.93 | 1600.63 |
| 24 | 1600.26 | 1594.67 | 1589.16 | 1586.54 | 1578.44 | 1554.10 | 1535.21 | 1561.52 | 1589.65 | 1600.93 | 1602.52 | 1600.83 |
| 25 | 1599.91 | 1594.31 | 1589.14 | 1586.41 | 1577.72 | 1553.22 | 1534.59 | 1561.86 | 1590.29 | 1600.90 | 1602.01 | 1600.96 |
| 26 | 1599.47 | 1594.18 | 1589.33 | 1585.94 | 1577.00 | 1552.17 | 1533.90 | 1561.96 | 1590.91 | 1600.84 | 1602.05 | 1601.09 |
| 27 | 1599.25 | 1593.78 | 1589.61 | 1586.21 | 1576.25 | 1551.30 | 1533.42 | 1562.89 | 1591.71 | 1601.23 | 1602.05 | 1601.27 |
| 28 | 1599.06 | 1593.45 | 1589.68 | 1586.53 | 1575.48 | 1550.45 | 1532.91 | 1563.81 | 1591.84 | 1601.89 | 1601.94 | 1601.55 |
| 29 | 1599.23 | 1592.92 | 1590.14 | 1586.75 | 1574.82 | 1549.20 | 1532.80 | 1564.80 | 1592.39 | 1602.50 | 1601.81 | 1601.65 |
| 30 | 1599.11 | 1592.53 | 1590.47 | 1586.83 | --- | 1548.43 | 1533.07 | 1565.48 | 1593.15 | 1602.50 | 1601.82 | 1601.66 |
| 31 | 1599.04 | --- | 1590.73 | 1587.04 | --- | 1546.99 | --- | 1565.47 | --- | 1602.53 | 1602.00 | --- |
| MEAN | 1600.59 | 1596.89 | 1592.03 | 1587.85 | 1581.73 | 1560.86 | 1539.16 | 1552.20 | 1577.18 | 1600.13 | 1602.16 | 1601.15 |
| MAX | 1602.00 | 1599.61 | 1600.68 | 1590.72 | 1587.28 | 1574.03 | 1545.89 | 1565.48 | 1593.15 | 1602.53 | 1602.93 | 1602.20 |
| MIN | 1599.04 | 1592.53 | 1589.14 | 1585.94 | 1574.82 | 1546.99 | 1532.80 | 1533.91 | 1564.71 | 1593.50 | 1601.68 | 1600.02 |
| † | 1,394,164 | 1,319,936 | 1,299,803 | 1,258,940 | 1,128,328 | 861,582 | 743,044 | 1,033,606 | 1,326,895 | 1,435,107 | 1,428,800 | 1,424,788 |
| ‡ | -22,719 | -74,228 | -20,133 | -40,863 | -130,612 | -266,746 | -118,538 | +290,562 | +293,289 | +108,212 | -6,307 | -4,012 |

CAL YR 1975..................‡+62,403
WTR YR 1976..................‡ +7,905

† Total contents, at end of month.
‡ Change in contents, in acre-feet.

## SKAGIT RIVER BASIN

### 12175500 THUNDER CREEK NEAR NEWHALEM, WA

LOCATION.--Lat 48°40'22", long 121°04'18", in SE¼ sec.23, T.37 N., R.13 E. (unsurveyed), Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, on right bank 0.4 mi (0.6 km) upstream from high-water line of Diablo Reservoir 9.0 mi (14.5 km) east of Newhalem, and at mile 3.4 (5.5 km).

DRAINAGE AREA.--105 mi² (272 km²).

PERIOD OF RECORD.-- October 1930 to current year. Published as "above Colonial Creek, near Marblemount" 1930-31.

REVISED RECORDS.--WSP 1012: 1943. WSP 1286: 1931(M), 1932, 1933(M), 1935(M), 1938-39(M), 1941-42(M), 1944-46(M), 1950(M), 1952 (annual runoff in acre-ft). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,220 ft (371.9 m), from river-profile map.

REMARKS. Records good, except those for period of no gage-height record, which are fair.

AVERAGE DISCHARGE.--46 years, 621 ft³/s (17.59 m³/s) 80.32 in/yr (2,040 mm/yr), 449,900 acre-ft/yr (555 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s (306 m³/s) Oct. 25, 1955, gage height, 12.68 ft (3.865 m), from rating curve extended above 3,500 ft³/s (99.1 m³/s); minimum not determined, probably less than 50 ft³/s (1.42 m³/s) during period of ice effect or no gage-height record in February 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Records for floods, prior to establishment of station, are given in WSP 1527.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,400 ft³/s (68.0 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 4 | 0300 | *4,820 | 137 | *9.16 | 2.792 | July 8 | 1100 | 2,650 | 75.0 | 7.28 | 2.219 |

Minimum discharge, 114 ft³/s (3.23 m³/s) Mar. 8, gage height, 2.37 ft (0.722 m), from minimum stage indicator.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 427 | 370 | 527 | 400 | 403 | 140 | 160 | 527 | 548 | 1100 | 1710 | 1310 |
| 2 | 514 | 600 | 2440 | 364 | 382 | 135 | 155 | 781 | 496 | 990 | 1680 | 1120 |
| 3 | 715 | 1020 | 3730 | 337 | 358 | 140 | 150 | 758 | 460 | 1010 | 1880 | 980 |
| 4 | 561 | 1500 | 3250 | 332 | 322 | 130 | 170 | 758 | 448 | 1240 | 1720 | 1020 |
| 5 | 598 | 1270 | 1440 | 322 | 290 | 130 | 200 | 713 | 470 | 1440 | 1660 | 1480 |
| 6 | 461 | 871 | 910 | 240 | 282 | 130 | 260 | 680 | 600 | 1830 | 1580 | 1150 |
| 7 | 339 | 656 | 696 | 272 | 277 | 120 | 260 | 813 | 800 | 2140 | 1800 | 830 |
| 8 | 287 | 534 | 776 | 265 | 260 | 115 | 290 | 1140 | 900 | 2450 | 1640 | 700 |
| 9 | 261 | 460 | 1100 | 250 | 242 | 120 | 330 | 1380 | 1010 | 1860 | 1410 | 600 |
| 10 | 254 | 403 | 830 | 240 | 232 | 140 | 340 | 1620 | 1100 | 1420 | 1450 | 580 |
| 11 | 241 | 355 | 628 | 224 | 228 | 160 | 370 | 1380 | 960 | 1330 | 1680 | 580 |
| 12 | 224 | 327 | 520 | 216 | 228 | 150 | 330 | 1000 | 840 | 1360 | 1660 | 560 |
| 13 | 207 | 320 | 454 | 204 | 218 | 135 | 290 | 1100 | 750 | 1250 | 1460 | 540 |
| 14 | 216 | 727 | 403 | 206 | 212 | 125 | 260 | 1140 | 680 | 1200 | 1210 | 600 |
| 15 | 392 | 1240 | 364 | 282 | 206 | 120 | 240 | 970 | 1300 | 1390 | 1130 | 590 |
| 16 | 544 | 808 | 330 | 644 | 210 | 120 | 220 | 1050 | 1600 | 1840 | 1150 | 620 |
| 17 | 2020 | 592 | 310 | 580 | 220 | 160 | 210 | 1130 | 1400 | 2070 | 972 | 640 |
| 18 | 1240 | 472 | 287 | 475 | 220 | 240 | 195 | 880 | 1600 | 1870 | 896 | 620 |
| 19 | 794 | 409 | 272 | 409 | 206 | 200 | 190 | 767 | 1800 | 1700 | 942 | 640 |
| 20 | 608 | 361 | 257 | 364 | 194 | 170 | 210 | 696 | 1500 | 1790 | 1410 | 640 |
| 21 | 463 | 327 | 245 | 335 | 184 | 160 | 200 | 688 | 1300 | 1540 | 1010 | 630 |
| 22 | 374 | 305 | 228 | 320 | 174 | 170 | 190 | 813 | 1200 | 1230 | 899 | 610 |
| 23 | 322 | 317 | 226 | 300 | 170 | 170 | 185 | 915 | 1000 | 1630 | 932 | 580 |
| 24 | 285 | 1010 | 275 | 280 | 165 | 165 | 200 | 817 | 980 | 2050 | 1080 | 560 |
| 25 | 277 | 640 | 275 | 262 | 160 | 170 | 210 | 758 | 900 | 1850 | 1400 | 560 |
| 26 | 267 | 513 | 672 | 255 | 150 | 140 | 200 | 740 | 700 | 1710 | 1040 | 560 |
| 27 | 252 | 424 | 612 | 781 | 150 | 150 | 220 | 1540 | 740 | 1430 | 885 | 540 |
| 28 | 240 | 361 | 463 | 588 | 145 | 140 | 270 | 1260 | 1100 | 1300 | 1110 | 540 |
| 29 | 305 | 310 | 563 | 524 | 140 | 130 | 307 | 885 | 1400 | 1780 | 1060 | 540 |
| 30 | 475 | 302 | 596 | 466 | --- | 135 | 373 | 718 | 1200 | 1780 | 1010 | 510 |
| 31 | 367 | --- | 469 | 430 | --- | 170 | --- | 616 | --- | 1770 | 1090 | --- |
| TOTAL | 14535 | 17804 | 24148 | 11217 | 6628 | 4570 | 7185 | 29033 | 29782 | 49350 | 40556 | 21430 |
| MEAN | 469 | 593 | 779 | 362 | 229 | 147 | 240 | 937 | 993 | 1592 | 1308 | 714 |
| MAX | 2020 | 1500 | 3730 | 781 | 403 | 240 | 373 | 1620 | 1800 | 2450 | 1880 | 1480 |
| MIN | 207 | 302 | 226 | 204 | 140 | 115 | 150 | 527 | 448 | 990 | 885 | 510 |
| CFSM | 4.47 | 5.65 | 7.42 | 3.45 | 2.18 | 1.40 | 2.29 | 8.92 | 9.46 | 15.2 | 12.5 | 6.80 |
| IN. | 5.15 | 6.31 | 8.56 | 3.97 | 2.35 | 1.62 | 2.55 | 10.29 | 10.55 | 17.48 | 14.37 | 7.59 |
| AC-FT | 28830 | 35310 | 47900 | 22250 | 13150 | 9060 | 14250 | 57590 | 59070 | 97890 | 80440 | 42510 |

CAL YR 1975 TOTAL 242734 MEAN 665 MAX 3990 MIN 101 CFSM 6.33 IN 86.00 AC-FT 481500
WTR YR 1976 TOTAL 256238 MEAN 700 MAX 3730 MIN 115 CFSM 6.67 IN 90.78 AC-FT 508200

NOTE.--No gage-height record Feb. 24 to Apr. 28, June 5 to July 1 and Sept. 7-30.

## 12177500 STETATTLE CREEK NEAR NEWHALEM, WA

LOCATION.--Lat 48°43'20", long 121°08'58", in NE¼ sec.6, T.37 N., R.13 E., Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, on left bank 5.5 mi (8.8 km) northeast of Newhalem and at mile 0.4 (0.6 km).

DRAINAGE AREA.--22.0 mi² (57.0 km²).

PERIOD OF RECORD.--December 1913 to November 1915 (fragmentary), September 1933 to current year. Published as "near Marblemount" 1913-15.

REVISED RECORDS.--WSP 1316: 1935(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 906.53 ft (276.310 m) above mean sea level (City of Seattle datum). Dec. 19, 1913, to Nov. 14, 1915, nonrecording gage at site about 0.3 mi (0.5 km) downstream at different datum. Sept. 7, 1933, to Aug. 26, 1937, water-stage recorder at site 750 ft (229 m) upstream at datum 1.69 ft (0.515 m) higher. Aug. 27, 1937, to Nov. 20, 1957, water-stage recorder at site 600 ft (183 m) upstream at present datum.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--43 years (water years 1934-76), 186 ft³/s (5.268 m³/s), 114.81 in/yr (2,916 mm/yr), 134,800 acre-ft/yr (166 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,580 ft³/s (243 m³/s) Nov. 26, 1949, gage height, 9.70 ft (2.957 m), from rating curve extended above 1,600 ft³/s (45.3 m³/s) on basis of slope-area measurement of peak flow; minimum, 9 ft³/s (0.255 m³/s) Nov. 9-11, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 970 ft³/s (27.5 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 16 | 2300 | 2,100 | 59.5 | 4.26 | 1.298 | Nov. 15 | 0600 | 1,140 | 32.3 | 3.41 | 1.039 |
| Nov. 3 | 2300 | 2,010 | 56.9 | 4.19 | 1.277 | Dec. 4 | 0200 | *2,430 | 68.8 | *4.50 | 1.372 |

Minimum discharge, 28 ft³/s (0.793 m³/s) Mar. 25, gage height, 0.75 ft (0.229 m), due to snow slide obstructing channel upstream; minimum daily discharge, 34 ft³/s (0.963 m³/s) Mar. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 54 | 338 | 239 | 178 | 173 | 46 | 76 | 386 | 180 | 338 | 337 | 225 |
| 2 | 62 | 482 | 1380 | 148 | 159 | 42 | 70 | 479 | 167 | 304 | 341 | 190 |
| 3 | 126 | 995 | 1810 | 128 | 142 | 40 | 68 | 394 | 156 | 345 | 352 | 163 |
| 4 | 172 | 1090 | 1190 | 128 | 116 | 38 | 75 | 365 | 158 | 464 | 330 | 165 |
| 5 | 270 | 614 | 440 | 137 | 101 | 37 | 105 | 326 | 177 | 459 | 330 | 420 |
| 6 | 158 | 375 | 270 | 118 | 92 | 36 | 158 | 317 | 236 | 543 | 336 | 330 |
| 7 | 93 | 298 | 192 | 106 | 85 | 35 | 156 | 396 | 326 | 565 | 355 | 207 |
| 8 | 71 | 225 | 298 | 100 | 78 | 34 | 175 | 541 | 411 | 632 | 326 | 154 |
| 9 | 67 | 177 | 506 | 94 | 72 | 35 | 198 | 558 | 437 | 427 | 273 | 132 |
| 10 | 71 | 141 | 370 | 88 | 69 | 44 | 213 | 598 | 448 | 348 | 291 | 128 |
| 11 | 63 | 118 | 234 | 92 | 74 | 46 | 253 | 460 | 367 | 352 | 323 | 128 |
| 12 | 55 | 104 | 177 | 81 | 88 | 43 | 213 | 333 | 346 | 345 | 326 | 120 |
| 13 | 50 | 109 | 145 | 71 | 84 | 41 | 180 | 378 | 263 | 309 | 281 | 113 |
| 14 | 115 | 440 | 120 | 71 | 66 | 40 | 161 | 367 | 235 | 327 | 238 | 141 |
| 15 | 170 | 699 | 105 | 135 | 89 | 38 | 145 | 333 | 377 | 404 | 235 | 141 |
| 16 | 506 | 338 | 92 | 294 | 90 | 38 | 124 | 390 | 536 | 490 | 280 | 154 |
| 17 | 1420 | 213 | 81 | 275 | 100 | 51 | 113 | 412 | 488 | 490 | 262 | 154 |
| 18 | 572 | 156 | 75 | 216 | 88 | 93 | 104 | 291 | 545 | 435 | 217 | 149 |
| 19 | 410 | 124 | 70 | 173 | 97 | 92 | 98 | 242 | 612 | 420 | 284 | 161 |
| 20 | 263 | 102 | 66 | 147 | 85 | 78 | 111 | 220 | 467 | 412 | 369 | 163 |
| 21 | 175 | 87 | 62 | 129 | 68 | 71 | 113 | 228 | 393 | 338 | 225 | 158 |
| 22 | 141 | 79 | 60 | 124 | 60 | 81 | 105 | 314 | 364 | 289 | 187 | 149 |
| 23 | 111 | 87 | 58 | 117 | 63 | 82 | 100 | 346 | 334 | 446 | 182 | 136 |
| 24 | 90 | 410 | 135 | 105 | 65 | 87 | 111 | 309 | 306 | 466 | 222 | 128 |
| 25 | 102 | 256 | 136 | 94 | 66 | 104 | 116 | 297 | 259 | 413 | 342 | 132 |
| 26 | 107 | 198 | 566 | 101 | 59 | 104 | 115 | 302 | 210 | 378 | 267 | 136 |
| 27 | 115 | 154 | 397 | 518 | 55 | 90 | 134 | 636 | 240 | 318 | 239 | 134 |
| 28 | 107 | 116 | 250 | 319 | 52 | 84 | 182 | 435 | 361 | 314 | 309 | 136 |
| 29 | 232 | 93 | 389 | 279 | 49 | 71 | 219 | 290 | 470 | 400 | 232 | 134 |
| 30 | 370 | 84 | 394 | 227 | --- | 66 | 281 | 232 | 408 | 375 | 216 | 124 |
| 31 | 239 | --- | 245 | 142 | --- | 84 | --- | 196 | --- | 380 | 213 | --- |
| TOTAL | 6557 | 8702 | 10557 | 4985 | 2505 | 1871 | 4272 | 11371 | 10277 | 12526 | 8720 | 4905 |
| MEAN | 212 | 290 | 341 | 161 | 86.4 | 60.4 | 142 | 367 | 343 | 404 | 281 | 164 |
| MAX | 1420 | 1090 | 1810 | 518 | 173 | 104 | 281 | 636 | 612 | 632 | 369 | 420 |
| MIN | 50 | 79 | 58 | 71 | 49 | 34 | 68 | 196 | 156 | 289 | 182 | 113 |
| CFSM | 9.64 | 13.2 | 15.5 | 7.32 | 3.93 | 2.75 | 6.45 | 16.7 | 15.6 | 18.4 | 12.8 | 7.45 |
| IN. | 11.09 | 14.71 | 17.85 | 8.43 | 4.24 | 3.16 | 7.22 | 19.23 | 17.38 | 21.18 | 14.74 | 8.29 |
| AC-FT | 13010 | 17260 | 20940 | 9890 | 4970 | 3710 | 8470 | 22550 | 20380 | 24850 | 17300 | 9730 |

CAL YR 1975 TOTAL 78664 MEAN 216 MAX 1810 MIN 35 CFSM 9.82 IN 133.01 AC-FT 156000
WTR YR 1976 TOTAL 87248 MEAN 238 MAX 1810 MIN 34 CFSM 10.8 IN 147.52 AC-FT 173100

## 12178000 SKAGIT RIVER AT NEWHALEM, WA

LOCATION.--Lat 48°40'19", long 121°14'48", in SW¼SE¼ sec. 21, T.37 N., R.12 E., Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, on right bank 0.4 mi (0.6 km) upstream from Newhalem Creek, 0.5 mi (0.8 km) downstream from city of Seattle powerplant at Newhalem, 10.8 mi (17.4 km) upstream from Bacon Creek, and at mile 93.7 (150.8 km).

DRAINAGE AREA.--1,175 mi$^2$ (3,043 km$^2$), of which 400 mi$^2$ (1,036 km$^2$) is in Canada.

PERIOD OF RECORD.--October 1908 to May 1914 and October 1920 to current year in reports of Geological Survey. June 1914 to September 1920 (monthly discharge only), in State Water-Supply Bulletin 6. Published as "near Marblemount" 1908-14, 1920-31. Chemical analyses October 1973 to September 1974.

REVISED RECORDS.--WSP 512: 1909-14. WSP 1012: 1929. WSP 1316: 1914(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 401.5 ft (122.38 m) above mean sea level (river-profile survey). Prior to May 24, 1914, nonrecording gages at site 0.5 mi (0.8 km) upstream at datum 91 ft (127.7 m) higher. Nov. 15, 1920 to June 4, 1923, nonrecording gage at site about 500 ft (152 m) upstream at same datum.

REMARKS.--Records excellent. Water is diverted 2.9 mi (4.7 km) above station and is returned to river at Seattle powerplant 0.5 mi (0.8 km) above station. Flow regulated for power at Gorge Dam since August 1924 and by Diablo, Ross, and Gorge Reservoirs (see sta 12175000, 12176500, and 12177700), having a combined total capacity of 1,533,000 acre-ft (1,890 hm$^3$).

AVERAGE DISCHARGE.--68 years (water years 1909-76), 4,511 ft$^3$/s (128 m$^3$/s) 3,268,000 acre-ft/yr (4,030 hm$^3$/yr), adjusted for storage in Diablo Reservoir since October 1929, Ross Reservoir since March 1940, and Gorge Reservoir since June 1960.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 63,500 ft$^3$/s (1,800 m$^3$/s) Nov. 29, 1909, gage height, 22.0 ft (6.71 m) from floodmark, site and datum then in use; minimum, 54 ft$^3$/s (1.53 m$^3$/s) Nov. 1, 1943, gage height, 78.15 ft (23.820 m); minimum daily, 136 ft$^3$/s (3.85 m$^3$/s) Aug. 24, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1815 reached a stage of approximately 20.5 ft (6.25 m), discharge about 115,000 ft$^3$/s (3,260 m$^3$/s). Records for other floods, prior to establishment of station, are given in WSP 1527.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,900 ft$^3$/s (875 m$^3$/s) Dec. 6, gage height, 90.88 ft (27.700 m); minimum, 1,020 ft$^3$/s (28.9 m$^3$/s) Sept. 26, gage height, 80.77 ft (24.61[illegible] m), minimum, daily, 1,580 ft$^3$/s (44.7 m$^3$/s) Oct. 8.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1720 | 3280 | 5020 | 4980 | 3860 | 6460 | 6880 | 3490 | 10200 | 9730 | 11700 | 4230 |
| 2 | 1690 | 4470 | 12800 | 4840 | 5500 | 5840 | 6730 | 4750 | 7380 | 9880 | 12000 | 5220 |
| 3 | 1870 | 6100 | 12700 | 4530 | 5320 | 6030 | 5210 | 5170 | 6360 | 6770 | 8220 | 5210 |
| 4 | 1900 | 10300 | 11300 | 5230 | 5840 | 5950 | 5420 | 6270 | 6640 | 6190 | 7060 | 3830 |
| 5 | 2010 | 9090 | 19000 | 5140 | 6080 | 5430 | 5900 | 8410 | 5270 | 5930 | 7010 | 5740 |
| 6 | 1960 | 11100 | 24100 | 4350 | 5770 | 6320 | 5950 | 5840 | 5450 | 7390 | 10300 | 5670 |
| 7 | 2000 | 9570 | 22800 | 5690 | 5430 | 5880 | 5820 | 6300 | 6460 | 10800 | 10200 | 5160 |
| 8 | 1580 | 9860 | 23800 | 5730 | 4380 | 6710 | 6140 | 5110 | 6520 | 9430 | 8520 | 4830 |
| 9 | 1960 | 7670 | 19400 | 6350 | 6020 | 6400 | 6190 | 5250 | 7180 | 11200 | 9700 | 5090 |
| 10 | 4050 | 5930 | 6850 | 4130 | 6750 | 6620 | 5910 | 6110 | 6400 | 14900 | 7330 | 5150 |
| 11 | 2420 | 4780 | 6210 | 5560 | 6670 | 6490 | 5520 | 10400 | 8430 | 12900 | 4940 | 3480 |
| 12 | 2080 | 4110 | 6210 | 5380 | 5370 | 6860 | 5810 | 8000 | 6030 | 10700 | 6900 | 2920 |
| 13 | 2900 | 4590 | 4980 | 4160 | 4320 | 6680 | 5240 | 8330 | 4890 | 8980 | 7980 | 3910 |
| 14 | 2380 | 4600 | 5310 | 2730 | 4140 | 5760 | 7110 | 7590 | 5710 | 10600 | 6310 | 4300 |
| 15 | 2280 | 5950 | 5930 | 2880 | 4440 | 5640 | 6510 | 3600 | 5230 | 11900 | 3780 | 4610 |
| 16 | 1860 | 7930 | 6100 | 3890 | 3290 | 4480 | 3390 | 3460 | 5880 | 12100 | 4940 | 4640 |
| 17 | 4380 | 8120 | 4820 | 3580 | 3460 | 4610 | 4510 | 6080 | 5770 | 12500 | 6310 | 4640 |
| 18 | 5430 | 8400 | 5260 | 3650 | 4460 | 5190 | 3990 | 4970 | 5610 | 13600 | 7910 | 2650 |
| 19 | 5340 | 8550 | 5570 | 5980 | 4760 | 6450 | 3080 | 5570 | 5380 | 13400 | 6420 | 1990 |
| 20 | 5890 | 8880 | 3970 | 5270 | 3900 | 6500 | 5760 | 7470 | 5500 | 12100 | 3960 | 4560 |
| 21 | 5530 | 7500 | 4670 | 3270 | 3440 | 4960 | 6460 | 6270 | 5090 | 11100 | 3500 | 3330 |
| 22 | 5320 | 5710 | 4530 | 3580 | 4450 | 5910 | 6100 | 6980 | 5960 | 9900 | 2930 | 2100 |
| 23 | 4580 | 6450 | 4820 | 3620 | 4640 | 5870 | 6120 | 7720 | 5590 | 10200 | 3830 | 2080 |
| 24 | 4810 | 8200 | 2310 | 4380 | 6520 | 6340 | 5870 | 9700 | 6610 | 11400 | 7170 | 1610 |
| 25 | 4960 | 9230 | 2840 | 3640 | 6200 | 6580 | 5760 | 7820 | 6680 | 11100 | 9850 | 1750 |
| 26 | 4940 | 8540 | 4910 | 5860 | 5930 | 6570 | 6740 | 9200 | 4790 | 11100 | 7100 | 1770 |
| 27 | 3490 | 6390 | 4540 | 5930 | 5810 | 6350 | 5120 | 9210 | 4900 | 7120 | 4670 | 2460 |
| 28 | 3950 | 5750 | 4170 | 3240 | 5810 | 5700 | 4720 | 10400 | 7880 | 5370 | 5590 | 2150 |
| 29 | 2650 | 5920 | 3930 | 4030 | 4960 | 6610 | 4140 | 6380 | 10100 | 5170 | 5640 | 2340 |
| 30 | 4800 | 5470 | 4510 | 4110 | --- | 7190 | 4050 | 5950 | 10300 | 8740 | 4170 | 3090 |
| 31 | 4400 | --- | 4830 | 2870 | --- | 6660 | --- | 7970 | --- | 9510 | 3930 | --- |
| TOTAL | 105130 | 212440 | 258190 | 138580 | 147720 | 189040 | 166150 | 209770 | 194190 | 311710 | 209870 | 110510 |
| MEAN | 3391 | 7081 | 8329 | 4470 | 5094 | 6098 | 5538 | 6767 | 6473 | 10060 | 6770 | 3684 |
| MAX | 5890 | 11100 | 24100 | 6350 | 6750 | 7190 | 7110 | 10400 | 10300 | 14900 | 12000 | 5740 |
| MIN | 1580 | 3280 | 2310 | 2730 | 3290 | 4480 | 3080 | 3460 | 4790 | 5170 | 2930 | 1610 |
| AC-FT | 208500 | 421400 | 512100 | 274900 | 293000 | 375000 | 329600 | 416100 | 385200 | 618300 | 416300 | 219200 |
| † | -25,148 | -69,430 | -22,554 | -38,143 | -131,173 | -264,682 | -120,830 | +290,021 | +295,100 | +108,189 | -7,397 | -6,770 |
| MEAN‡ | 2,981 | 5,917 | 7,960 | 3,850 | 2,813 | 1,794 | 3,509 | 11,482 | 11,436 | 11,813 | 6,649 | 3,571 |
| AC-FT‡ | 183,352 | 351,970 | 489,546 | 236,757 | 161,827 | 110,318 | 208,770 | 706,121 | 680,300 | 726,489 | 408,903 | 212,430 |

CAL YR 1975: TOTAL 1,830,640 MEAN 5,015 MAX 24,100 MIN 1,020 AC-FT 3,631,000
DO.....: MEAN‡ 5,101 AC-FT‡ 3,693,580
WTR YR 1976: TOTAL 2,253,300 MEAN 6,157 MAX 24,100 MIN 1,580 AC-FT 4,469,000
DO.....: MEAN‡ 6,164 AC-FT‡ 4,476,183

† Change in contents, in acre-feet, Ross, Diablo and Gorge Reservoir.
‡ Adjusted for change in reservoir contents.

## 12178100 NEWHALEM CREEK NEAR NEWHALEM, WA

LOCATION.--Lat 48°39'22", long 121°14'14", in SE¼SE¼ sec.28, T.37 N., R.12 E., Whatcom County, Hydrologic Unit 17110005, North Cascades National Park, on left bank 1.2 mi (1.9 km) south of Newhalem, 1.5 mi (2.4 km) downstream from East Fork, and at mile 1.5 (2.4 km).

DRAINAGE AREA.--27.9 mi$^2$ (72.3 km$^2$).

PERIOD OF RECORD.--January 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,080 ft (329.2 m), by barometer.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--15 years, 181 ft$^3$/s (5.126 m$^3$/s), 88.10 in/yr (2,238 mm/yr), 131,100 acre-ft/yr (162 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,600 ft$^3$/s (159 m$^3$/s) about Nov. 20, 1962, gage height, 7.28 ft (2.219 m) from floodmarks, from rating curve extended above 750 ft$^3$/s (21.2 m$^3$/s) on basis of slope-area measurement of peak flow; minimum, 20 ft$^3$/s (0.57 m$^3$/s) Feb. 1, 1963, gage height, 1.07 ft (0.326 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 750 ft$^3$/s (21.2 m$^3$/s) and maximum (*) from peak-stage indicator:

| Date | Time | Discharge (ft$^3$/s) | (m$^3$/s) | Gage height (ft) | (m) | Date | Time | Discharge (ft$^3$/s) | (m$^3$/s) | Gage height (ft) | (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 2300 | 1,430 | 40.5 | 4.97 | 1.515 | Dec. 9 | unknown | unknown | --- | unknown | --- |
| Nov. 2 | 1500 | 782 | 22.1 | 4.17 | 1.271 | Dec. 26 | 1400 | 1,070 | 30.3 | 4.58 | 1.396 |
| Nov. 15 | 0500 | 1,290 | 36.4 | 4.83 | 1.472 | Jan. 27 | 0600 | 806 | 22.8 | 4.21 | 1.283 |
| Nov. 24 | 0900 | 1,430 | 40.5 | 4.97 | 1.515 | May 27 | 1300 | 758 | 21.5 | 4.13 | 1.259 |
| Dec. 4 | unknown | *3,470 | 98.3 | *6.36 | 1.939 | July 8 | 0700 | 820 | 23.2 | 4.23 | 1.289 |

Minimum discharge, 33 ft$^3$/s (0.93 m$^3$/s) Mar. 7, gage height, 1.45 ft (0.442 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 50 | 255 | 347 | 161 | 165 | 43 | 58 | 281 | 168 | 344 | 323 | 194 |
| 2 | 51 | 507 | 1840 | 139 | 156 | 42 | 56 | 369 | 151 | 308 | 326 | 171 |
| 3 | 82 | 615 | 2900 | 124 | 138 | 41 | 55 | 296 | 137 | 329 | 338 | 145 |
| 4 | 103 | 590 | 2500 | 124 | 118 | 41 | 62 | 270 | 129 | 408 | 305 | 143 |
| 5 | 203 | 462 | 1100 | 124 | 107 | 41 | 84 | 251 | 134 | 453 | 293 | 247 |
| 6 | 137 | 331 | 520 | 107 | 102 | 41 | 120 | 232 | 168 | 565 | 293 | 216 |
| 7 | 92 | 265 | 430 | 100 | 98 | 35 | 118 | 287 | 235 | 575 | 329 | 155 |
| 8 | 78 | 211 | 480 | 95 | 89 | 34 | 136 | 436 | 317 | 663 | 305 | 125 |
| 9 | 73 | 168 | 900 | 86 | 82 | 35 | 158 | 503 | 344 | 420 | 255 | 112 |
| 10 | 75 | 140 | 450 | 83 | 76 | 42 | 160 | 575 | 375 | 344 | 260 | 108 |
| 11 | 67 | 123 | 230 | 79 | 75 | 48 | 188 | 444 | 317 | 341 | 286 | 107 |
| 12 | 61 | 115 | 180 | 73 | 75 | 43 | 167 | 305 | 287 | 323 | 283 | 104 |
| 13 | 58 | 125 | 150 | 68 | 73 | 39 | 143 | 350 | 230 | 284 | 259 | 99 |
| 14 | 88 | 418 | 135 | 71 | 72 | 37 | 129 | 362 | 202 | 293 | 223 | 111 |
| 15 | 185 | 706 | 120 | 158 | 70 | 35 | 116 | 308 | 326 | 375 | 216 | 110 |
| 16 | 281 | 319 | 110 | 330 | 71 | 35 | 103 | 341 | 560 | 467 | 240 | 116 |
| 17 | 1010 | 223 | 105 | 284 | 72 | 51 | 95 | 365 | 489 | 467 | 191 | 119 |
| 18 | 610 | 166 | 98 | 213 | 70 | 86 | 89 | 278 | 570 | 404 | 180 | 114 |
| 19 | 489 | 140 | 93 | 163 | 68 | 72 | 85 | 235 | 652 | 375 | 225 | 120 |
| 20 | 319 | 123 | 88 | 139 | 63 | 62 | 98 | 212 | 480 | 365 | 381 | 120 |
| 21 | 216 | 111 | 84 | 129 | 60 | 56 | 90 | 207 | 379 | 323 | 236 | 118 |
| 22 | 158 | 104 | 81 | 129 | 57 | 60 | 85 | 255 | 335 | 272 | 187 | 113 |
| 23 | 125 | 137 | 78 | 123 | 62 | 60 | 82 | 287 | 299 | 379 | 173 | 108 |
| 24 | 107 | 848 | 156 | 109 | 63 | 59 | 90 | 257 | 284 | 416 | 182 | 103 |
| 25 | 108 | 334 | 143 | 102 | 58 | 60 | 94 | 265 | 252 | 382 | 316 | 101 |
| 26 | 106 | 235 | 620 | 103 | 54 | 56 | 90 | 247 | 207 | 353 | 252 | 102 |
| 27 | 107 | 174 | 365 | 540 | 51 | 53 | 100 | 590 | 215 | 305 | 208 | 99 |
| 28 | 104 | 137 | 235 | 296 | 49 | 50 | 128 | 404 | 311 | 293 | 233 | 98 |
| 29 | 235 | 117 | 305 | 240 | 46 | 47 | 141 | 272 | 428 | 365 | 205 | 98 |
| 30 | 396 | 113 | 305 | 203 | --- | 47 | 184 | 222 | 382 | 326 | 188 | 94 |
| 31 | 230 | --- | 206 | 177 | --- | 60 | --- | 187 | --- | 332 | 182 | --- |
| TOTAL | 6004 | 8312 | 15354 | 4872 | 2340 | 1511 | 3304 | 9893 | 9363 | 11849 | 7873 | 3770 |
| MEAN | 194 | 277 | 495 | 157 | 80.7 | 48.7 | 110 | 319 | 312 | 382 | 254 | 126 |
| MAX | 1010 | 848 | 2900 | 540 | 165 | 86 | 188 | 590 | 652 | 663 | 381 | 247 |
| MIN | 50 | 104 | 78 | 68 | 46 | 34 | 55 | 187 | 129 | 272 | 173 | 94 |
| CFSM | 6.95 | 9.93 | 17.7 | 5.63 | 2.89 | 1.75 | 3.94 | 11.4 | 11.2 | 13.7 | 9.10 | 4.52 |
| IN. | 8.01 | 11.08 | 20.47 | 6.50 | 3.12 | 2.01 | 4.41 | 13.19 | 12.48 | 15.80 | 10.50 | 5.03 |
| AC-FT | 11910 | 16490 | 30450 | 9660 | 4640 | 3000 | 6550 | 19620 | 18570 | 23500 | 15620 | 7480 |

CAL YR 1975 TOTAL 78750 MEAN 216 MAX 2900 MIN 39 CFSM 7.74 IN 105.00 AC-FT 156200
WTR YR 1976 TOTAL 84445 MEAN 231 MAX 2900 MIN 34 CFSM 8.28 IN 112.59 AC-FT 167500

NOTE.--No gage-height record Dec. 3-23.

## 12179000 SKAGIT RIVER ABOVE ALMA CREEK, NEAR MARBLEMOUNT, WA

LOCATION.--Lat 48°36'27", long 121°21'37", in SW¼NE¼ sec.15, T.36 N., R.11 E., Skagit County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, on right bank 0.6 mi (1.0 km) upstream from Alma Creek, 6.8 mi (10.9 km) northeast of Marblemount, and at mile 85.8 (138.1 km).

DRAINAGE AREA.--1,274 mi$^2$ (3,300 km$^2$), of which 400 mi$^2$ (1,036 km$^2$) is in Canada.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 358.8 ft (109.4 m) above mean sea level (river-profile survey).

REMARKS.--Water discharge records excellent except those for period of no gage-height record Nov. 28 to Dec. 22, which are good. All diversions returned to river above gage. Flow regulated for powerplants on upper Skagit River by Ross, Diablo, and Gorge Reservoirs (see pp. 248, 273, 274).

AVERAGE DISCHARGE.--26 years, 5,688 ft$^3$/s (161.1 m$^3$/s), 4,121,000 acre-ft/yr (5,080 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,500 ft$^3$/s (1,090 m$^3$/s) June 21, 1967, gage height, 17.36 ft (5.291 m); minimum, 990 ft$^3$/s (28.0 m$^3$/s) Dec. 29, 1957, gage height, 4.55 ft (1.387 m); minimum daily, 1,220 ft$^3$/s (34.6 m$^3$/s) Oct 12, 13, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31,600 ft$^3$/s (895 m$^3$/s) Dec. 6, gage height, 15.79 ft (4.813 m) from peak stage indicator; minimum, 1,270 ft$^3$/s (36.0 m$^3$/s) Oct. 1, 2, gage height, 5.12 ft (1.561 m); minimum daily, 1,940 ft$^3$/s (54.9 m$^3$/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1960 | 4740 | 5850 | 5550 | 4770 | 6870 | 7460 | 4890 | 11100 | 11200 | 12300 | 5190 |
| 2 | 1940 | 6170 | 14300 | 5400 | 6390 | 6340 | 7390 | 6560 | 8120 | 11500 | 13500 | 5950 |
| 3 | 2260 | 8560 | 14400 | 5150 | 6050 | 6270 | 5800 | 6670 | 6610 | 8130 | 9780 | 6000 |
| 4 | 2500 | 14000 | 15100 | 5900 | 6490 | 6360 | 5970 | 7640 | 6440 | 7930 | 8230 | 4450 |
| 5 | 2810 | 11600 | 20500 | 5800 | 6700 | 5860 | 6510 | 9720 | 5100 | 7780 | 8070 | 7050 |
| 6 | 2690 | 13100 | 27000 | 4950 | 6420 | 6540 | 6790 | 7030 | 5410 | 9430 | 11500 | 6830 |
| 7 | 2440 | 11200 | 26000 | 6400 | 6090 | 6320 | 6650 | 7670 | 6560 | 13100 | 11600 | 6080 |
| 8 | 1940 | 11300 | 26300 | 6400 | 4890 | 7190 | 7050 | 7090 | 6940 | 12200 | 10000 | 5520 |
| 9 | 2260 | 8830 | 16000 | 7100 | 6430 | 6950 | 7220 | 7420 | 7710 | 12900 | 10700 | 5680 |
| 10 | 4190 | 6830 | 8000 | 4970 | 7250 | 7230 | 6900 | 8520 | 7100 | 16200 | 8430 | 5710 |
| 11 | 2700 | 5620 | 7050 | 6200 | 7190 | 7110 | 6650 | 12300 | 8730 | 14500 | 6230 | 4180 |
| 12 | 2460 | 4870 | 7000 | 5940 | 6130 | 7470 | 6840 | 9460 | 6560 | 11900 | 7950 | 3430 |
| 13 | 3180 | 5230 | 5500 | 4950 | 4880 | 7310 | 6170 | 9930 | 5180 | 10300 | 9010 | 4350 |
| 14 | 2770 | 6390 | 5950 | 3380 | 4820 | 6330 | 7910 | 9150 | 5730 | 12000 | 7500 | 4770 |
| 15 | 3050 | 8990 | 6650 | 3830 | 4850 | 6270 | 7260 | 5060 | 5710 | 13300 | 4490 | 5170 |
| 16 | 2850 | 9570 | 6800 | 5520 | 4030 | 5010 | 4110 | 5060 | 7050 | 14100 | 6180 | 5080 |
| 17 | 9390 | 9350 | 5550 | 5140 | 4100 | 5120 | 5070 | 7700 | 6760 | 14300 | 7180 | 5320 |
| 18 | 8010 | 9390 | 5950 | 4760 | 4960 | 5840 | 4480 | 6230 | 6840 | 15300 | 8690 | 3340 |
| 19 | 7170 | 9440 | 6200 | 6840 | 5270 | 7250 | 3550 | 6620 | 6870 | 15000 | 7540 | 2540 |
| 20 | 7150 | 9630 | 4400 | 6300 | 4550 | 7260 | 6270 | 8450 | 6560 | 13900 | 5720 | 5130 |
| 21 | 6470 | 8250 | 5250 | 4220 | 3910 | 5660 | 7000 | 7180 | 5800 | 12700 | 4440 | 3970 |
| 22 | 6140 | 6310 | 5100 | 4440 | 4860 | 6610 | 6570 | 8060 | 6350 | 11100 | 3930 | 2800 |
| 23 | 5350 | 7200 | 5310 | 4380 | 5300 | 6650 | 6600 | 9020 | 5920 | 11900 | 4560 | 2550 |
| 24 | 5290 | 10700 | 3340 | 5010 | 6990 | 7150 | 6400 | 10900 | 7410 | 13200 | 7890 | 2100 |
| 25 | 5420 | 10800 | 3640 | 4220 | 6710 | 7450 | 6280 | 9020 | 7850 | 12900 | 11200 | 2180 |
| 26 | 5680 | 9880 | 7180 | 6420 | 6460 | 7390 | 7230 | 10500 | 5740 | 12700 | 8330 | 2200 |
| 27 | 4170 | 7290 | 6540 | 8260 | 6150 | 7130 | 5710 | 11800 | 5780 | 8470 | 5690 | 2960 |
| 28 | 4490 | 6500 | 4900 | 4850 | 6330 | 6430 | 5410 | 12400 | 8890 | 6560 | 6600 | 2590 |
| 29 | 3810 | 6650 | 4350 | 5080 | 5300 | 7320 | 4930 | 7650 | 12100 | 6600 | 6670 | 2730 |
| 30 | 6380 | 6100 | 5100 | 5430 | --- | 7810 | 5030 | 7020 | 12100 | 9770 | 5030 | 3590 |
| 31 | 5750 | --- | 5400 | 3830 | --- | 7290 | --- | 9000 | --- | 11200 | 4880 | --- |
| TOTAL | 132670 | 254490 | 290610 | 166620 | 164270 | 207790 | 187210 | 255720 | 215020 | 362070 | 243820 | 129440 |
| MEAN | 4280 | 8483 | 9375 | 5375 | 5664 | 6703 | 6240 | 8249 | 7167 | 11680 | 7865 | 4315 |
| MAX | 9390 | 14000 | 27000 | 8260 | 7250 | 7810 | 7910 | 12400 | 12100 | 16200 | 13500 | 7050 |
| MIN | 1940 | 4740 | 3340 | 3380 | 3910 | 5010 | 3550 | 4890 | 5100 | 6560 | 3930 | 2100 |
| AC-FT | 263200 | 504800 | 576400 | 330500 | 325800 | 412200 | 371300 | 507200 | 426500 | 718200 | 483600 | 256700 |

CAL YR 1975 TOTAL 2161200 MEAN 5921 MAX 27000 MIN 1350 AC-FT 4287000
WTR YR 1976 TOTAL 2609730 MEAN 7130 MAX 27000 MIN 1940 AC-FT 5176000

## 12179000 SKAGIT RIVER ABOVE ALMA CREEK NEAR MARBLEMOUNT, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1953 -1973, 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: January 1953 to September 1973, September 1974 to current year.

INSTRUMENTATION.--Temperature recorder for period of daily record.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Temperature recorder clock stopped Apr. 12-22 (range in temperature 4.0°C to 6.0°C).

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 13.5°C July 30, 1961, Sept. 5, 1966, July 31, 1970; minimum, 1.0°C Jan. 26, 27, 29-31, Feb. 1-3, 1972.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 11.5°C on several days in October, August, and September; minimum, 2.0°C Jan. 16, 17, Mar. 3-6.

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 11.5 | 9.5 | 8.5 | 8.0 | 6.0 | 5.0 | 4.0 | 4.0 | 4.5 | 4.0 | 4.0 | 3.0 |
| 2 | 11.5 | 9.5 | 8.0 | 8.0 | 5.0 | 4.5 | 4.5 | 4.0 | 4.0 | 3.5 | 3.5 | 3.0 |
| 3 | 10.5 | 10.0 | 9.0 | 8.0 | 5.5 | 5.0 | 4.5 | 4.0 | 4.5 | 3.5 | 3.5 | 2.0 |
| 4 | 10.5 | 9.0 | 8.5 | 8.0 | 5.5 | 5.0 | 4.5 | 4.0 | 4.0 | 3.5 | 3.0 | 2.0 |
| 5 | 9.5 | 9.0 | 8.5 | 8.0 | 5.5 | 5.0 | 4.5 | 4.0 | 4.0 | 3.0 | 3.5 | 2.0 |
| 6 | 10.0 | 9.0 | 8.5 | 8.0 | 6.0 | 5.5 | 4.5 | 4.0 | 4.0 | 3.5 | 3.5 | 2.0 |
| 7 | 10.0 | 8.5 | 8.5 | 8.0 | 6.0 | 6.0 | 4.5 | 4.0 | 4.0 | 3.5 | 3.5 | 3.0 |
| 8 | 9.5 | 9.0 | 8.0 | 7.0 | 6.5 | 6.0 | 4.5 | 4.0 | 4.0 | 3.5 | 4.0 | 3.0 |
| 9 | 9.5 | 9.0 | 9.0 | 7.0 | 6.5 | 6.0 | 4.5 | 4.0 | 4.0 | 3.5 | 3.5 | 3.0 |
| 10 | 10.0 | 9.0 | 8.0 | 8.0 | 6.0 | 5.0 | 4.5 | 3.5 | 4.5 | 4.0 | 3.5 | 3.0 |
| 11 | 10.5 | 9.0 | 8.0 | 7.0 | 5.5 | 5.0 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | 3.0 |
| 12 | 10.0 | 9.5 | 8.5 | 7.0 | 5.5 | 5.0 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | 3.0 |
| 13 | 10.0 | 9.5 | --- | --- | 5.0 | 4.5 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.0 |
| 14 | 10.0 | 9.0 | --- | --- | 5.0 | 4.5 | 4.0 | 3.0 | 4.5 | 4.0 | 4.0 | 3.0 |
| 15 | --- | --- | 7.0 | 6.0 | 5.0 | 4.5 | 4.0 | 3.0 | 4.5 | 4.0 | 4.5 | 3.0 |
| 16 | --- | --- | 7.0 | 6.0 | 5.0 | 4.5 | 3.5 | 2.0 | 4.5 | 4.0 | 4.5 | 3.0 |
| 17 | 9.0 | 8.5 | 7.0 | 6.5 | 5.0 | 4.5 | 3.5 | 2.0 | 4.5 | 4.0 | 4.5 | 3.5 |
| 18 | 9.0 | 8.0 | 7.0 | 6.5 | 5.0 | 4.5 | 3.5 | 3.0 | 4.5 | 4.0 | 4.5 | 3.5 |
| 19 | --- | --- | 7.0 | 6.5 | 5.0 | 4.5 | 3.5 | 3.0 | 4.5 | 3.5 | 4.0 | 3.5 |
| 20 | 9.0 | 8.5 | 8.0 | 7.0 | 5.0 | 4.5 | 4.0 | 3.5 | 4.0 | 3.5 | 3.5 | 3.0 |
| 21 | --- | --- | 8.0 | 7.0 | 5.0 | 4.5 | 4.0 | 3.5 | 4.0 | 3.5 | 4.0 | 3.5 |
| 22 | 9.0 | 8.5 | 8.0 | 7.0 | 5.0 | 4.5 | 4.0 | 3.5 | 3.5 | 3.0 | 4.0 | 3.5 |
| 23 | 9.0 | 8.5 | 7.0 | 7.0 | 5.0 | 5.0 | 4.0 | 3.5 | 4.0 | 3.5 | 4.0 | 3.0 |
| 24 | --- | --- | 7.0 | 6.5 | 5.0 | 5.0 | 4.0 | 3.5 | 3.5 | 3.5 | 3.5 | 3.0 |
| 25 | 9.0 | 8.5 | 7.0 | 6.5 | 5.0 | 4.5 | 4.0 | 3.5 | 4.0 | 3.5 | 4.0 | 3.5 |
| 26 | 9.0 | 8.5 | 6.5 | 6.0 | 5.0 | 4.5 | 4.0 | 3.5 | 4.0 | 3.5 | 3.5 | 3.5 |
| 27 | 9.0 | 8.5 | 6.5 | 6.0 | 5.0 | 4.5 | 4.0 | 3.5 | 3.5 | 3.5 | 4.0 | 3.5 |
| 28 | 9.0 | 8.0 | 6.0 | 5.5 | 4.5 | 4.5 | 4.5 | 3.5 | 3.5 | 3.0 | 4.5 | 3.5 |
| 29 | 8.5 | 7.0 | 6.0 | 5.5 | 5.0 | 4.5 | 4.5 | 4.0 | 4.0 | 3.5 | 4.5 | 3.5 |
| 30 | 8.5 | 7.0 | 6.0 | 5.5 | 5.0 | 4.5 | 5.0 | 4.0 | --- | --- | 4.0 | 3.5 |
| 31 | 8.5 | 8.0 | --- | --- | 4.5 | 4.0 | 4.5 | 4.0 | --- | --- | 4.0 | 3.5 |
| MONTH | 11.5 | 7.0 | 8.5 | 5.5 | 6.5 | 4.0 | 5.0 | 2.0 | 4.5 | 3.0 | 4.5 | 2.0 |

| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 4.0 | 3.5 | 7.0 | 5.0 | 6.5 | 6.0 | 8.0 | 7.0 | --- | --- | 10.5 | 9.5 |
| 2 | 4.5 | 3.5 | 6.0 | 5.0 | 6.5 | 6.0 | 8.0 | 7.0 | --- | --- | 10.5 | 9.5 |
| 3 | 4.5 | 3.5 | 6.0 | 4.5 | 8.0 | 5.5 | 8.0 | 7.0 | --- | --- | 11.0 | 9.5 |
| 4 | 5.0 | 3.5 | 6.5 | 5.0 | 8.0 | 6.0 | 8.5 | 7.0 | 9.5 | 7.0 | 10.5 | 10.0 |
| 5 | 4.5 | 3.5 | 6.0 | 5.0 | 8.0 | 6.0 | 8.5 | 7.0 | 10.0 | 9.5 | 10.0 | 9.5 |
| 6 | 5.0 | 3.5 | 6.0 | 5.0 | 8.5 | 6.5 | 8.5 | 7.0 | 10.0 | 9.5 | 10.0 | 9.5 |
| 7 | 5.0 | 3.5 | 7.0 | 5.0 | 8.0 | 6.5 | 8.5 | 7.0 | 10.5 | 9.5 | 10.0 | 9.0 |
| 8 | 4.5 | 3.5 | 7.0 | 5.0 | 8.0 | 7.0 | --- | --- | 10.5 | 9.0 | 10.0 | 9.0 |
| 9 | 4.5 | 3.5 | 7.0 | 5.0 | 8.5 | 6.5 | --- | --- | 10.0 | 9.0 | 10.5 | 9.0 |
| 10 | 5.0 | 3.5 | 6.0 | 5.5 | 8.5 | 7.0 | --- | --- | 10.0 | 9.5 | 10.5 | 9.5 |
| 11 | 5.0 | 4.0 | 6.5 | 5.5 | 8.0 | 6.5 | --- | --- | 11.0 | 9.5 | 10.5 | 9.5 |
| 12 | --- | --- | 7.0 | 5.5 | 8.0 | 6.5 | --- | --- | 10.5 | 9.5 | 10.5 | 9.5 |
| 13 | --- | --- | 6.0 | 5.5 | 8.0 | 6.5 | --- | --- | 10.0 | 9.5 | 10.5 | 9.5 |
| 14 | --- | --- | 6.5 | 5.0 | 8.5 | 6.5 | --- | --- | 10.0 | 9.5 | 10.5 | 9.5 |
| 15 | --- | --- | 8.0 | 5.5 | 8.0 | 7.0 | --- | --- | 10.5 | 9.0 | 11.0 | 10.0 |
| 16 | --- | --- | 8.0 | 5.5 | 8.0 | 6.5 | --- | --- | 9.5 | 9.0 | 11.0 | 10.0 |
| 17 | --- | --- | 6.5 | 5.5 | 8.5 | 6.5 | --- | --- | 10.0 | 9.0 | 10.5 | 10.0 |
| 18 | --- | --- | 7.0 | 5.0 | 8.5 | 6.5 | --- | --- | 10.0 | 9.5 | 11.0 | 10.0 |
| 19 | --- | --- | 7.0 | 5.5 | 8.0 | 6.5 | --- | --- | 10.0 | 9.5 | 11.5 | 9.5 |
| 20 | --- | --- | 7.0 | 6.0 | 8.0 | 6.5 | --- | --- | 10.5 | 9.0 | 11.0 | 10.0 |
| 21 | --- | --- | 8.0 | 6.0 | 8.0 | 6.5 | --- | --- | 10.5 | 9.0 | 10.5 | 10.0 |
| 22 | --- | --- | 8.5 | 6.5 | --- | --- | --- | --- | 10.5 | 9.5 | 10.5 | 10.0 |
| 23 | 4.5 | 4.0 | 7.0 | 6.0 | --- | --- | --- | --- | 10.5 | 9.5 | 10.5 | 10.0 |
| 24 | 5.0 | 4.0 | 7.0 | 6.0 | --- | --- | --- | --- | 10.5 | 9.5 | 11.5 | 10.0 |
| 25 | 5.0 | 4.0 | 7.0 | 6.0 | 8.0 | 6.5 | --- | --- | 10.5 | 9.5 | 11.5 | 10.0 |
| 26 | 5.0 | 4.0 | 6.5 | 5.5 | 8.5 | 6.5 | --- | --- | 10.0 | 9.5 | 11.5 | 10.0 |
| 27 | 6.0 | 4.0 | 6.5 | 5.5 | 8.5 | 6.5 | --- | --- | 10.0 | 9.5 | 11.5 | 10.0 |
| 28 | 6.0 | 4.5 | 6.5 | 5.0 | 8.5 | 7.0 | --- | --- | 10.5 | 9.5 | 11.5 | 9.5 |
| 29 | 6.0 | 4.5 | 6.5 | 5.5 | 8.5 | 8.0 | --- | --- | 10.5 | 9.5 | 11.5 | 10.0 |
| 30 | 6.5 | 5.0 | 6.5 | 5.5 | 8.5 | 7.0 | --- | --- | 11.0 | 9.5 | 11.0 | 10.0 |
| 31 | --- | --- | 6.5 | 5.5 | --- | --- | --- | --- | 11.5 | 9.5 | --- | --- |
| MONTH | --- | --- | 8.5 | 4.5 | 8.5 | 5.5 | --- | --- | 11.5 | 7.0 | 11.5 | 9.0 |
| YEAR | 11.5 | 2.0 | | | | | | | | | | |

## 12181000 SKAGIT RIVER AT MARBLEMOUNT, WA

LOCATION (REVISED).--Lat 48°32'02", long 121°25'43", in NE¼SW¼ sec.7, T.35 N., R.11 E., Skagit County, Hydrologic Unit 17110005, on right bank 0.5 mi (0.8 km) north of Marblemount and 0.6 mi (1.0 km) upstream from Cascade River, and at mile 78.7 (126.6 km).

DRAINAGE AREA.--1,381 mi² (3,577 km²), approximately (revised), of which 400 mi² (1,036 km²) is in Canada.

PERIOD OF RECORD.--September 1943 to July 1944, October 1946 to September 1951, May to September 1976.

GAGE.--Water-stage recorder. Datum of gage is 305.1 ft (8.640 m) above mean sea level (river-profile survey).

REMARKS.--No diversion above station. Flow partly regulated by powerplants on upper Skagit River, and by Ross Reservoir and by Diablo Reservoir.

AVERAGE DISCHARGE.--5 years (water years 1947-51) 6,580 ft³/s (186.3 m³/s) 4,764,000 ac-ft/yr (5,870 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,300 ft³/s (1,680 m³/s) Nov. 27, 1949, gage height, 11.37 ft (3.466 m), from rating curve extended above 20,000 ft³/s (566 m³/s); minimum, 620 ft³/s (17.6 m³/s) Mar. 6, 1944, gage height, 0.55 ft (0.168 m); minimum daily, 1,190 ft³/s (33.7 m³/s) Feb. 25, 1944.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, during period May to September 1976, 31,000 ft³/s (878 m³/s) July 14, gage height, 8.13 ft (2.478 m); minimum, 1,880 ft³/s (53.2 m³/s) Sept. 26, gage height, 1.86 ft (0.567 m); minimum daily, 2,490 ft³/s (70.5 m³/s) Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, MAY TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | --- | 12500 | 13200 | 13900 | 5890 |
| 2 | | | | | | | | --- | 9550 | 13700 | 15800 | 6500 |
| 3 | | | | | | | | --- | 7590 | 9750 | 11600 | 6700 |
| 4 | | | | | | | | --- | 8110 | 9790 | 9660 | 4930 |
| 5 | | | | | | | | --- | 6540 | 9750 | 9290 | 8280 |
| 6 | | | | | | | | --- | 7140 | 11800 | 13000 | 8040 |
| 7 | | | | | | | | --- | 8630 | 16200 | 13200 | 6950 |
| 8 | | | | | | | | --- | 9470 | 15700 | 11800 | 6170 |
| 9 | | | | | | | | --- | 10300 | 15400 | 12000 | 6180 |
| 10 | | | | | | | | --- | 9840 | 18900 | 9850 | 6180 |
| 11 | | | | | | | | --- | 11300 | 17400 | 7530 | 4760 |
| 12 | | | | | | | | --- | 9390 | 13800 | 9070 | 3850 |
| 13 | | | | | | | | --- | 7210 | 12300 | 10200 | 4670 |
| 14 | | | | | | | | --- | 7550 | 13800 | 8980 | 5130 |
| 15 | | | | | | | | --- | 8150 | 15300 | 5140 | 5610 |
| 16 | | | | | | | | --- | 10700 | 17100 | 7460 | 5380 |
| 17 | | | | | | | | --- | 9930 | 17100 | 8170 | 5790 |
| 18 | | | | | | | | --- | 10200 | 18000 | 9660 | 3890 |
| 19 | | | | | | | | --- | 10500 | 17400 | 8820 | 3000 |
| 20 | | | | | | | | 10200 | 9590 | 16300 | 7470 | 5420 |
| 21 | | | | | | | | 8460 | 8390 | 14800 | 5270 | 4480 |
| 22 | | | | | | | | 9390 | 8830 | 12700 | 4790 | 3380 |
| 23 | | | | | | | | 10100 | 8270 | 14000 | 4490 | 2920 |
| 24 | | | | | | | | 12700 | 8950 | 15600 | 8590 | 2620 |
| 25 | | | | | | | | 11100 | 9270 | 15200 | 12200 | 2490 |
| 26 | | | | | | | | 11800 | 6680 | 14500 | 9630 | 2590 |
| 27 | | | | | | | | 15000 | 6580 | 10300 | 6580 | 3310 |
| 28 | | | | | | | | 15300 | 10000 | 7880 | 7510 | 2970 |
| 29 | | | | | | | | 9030 | 14600 | 8080 | 7590 | 3060 |
| 30 | | | | | | | | 8430 | 14500 | 11100 | 5670 | 3870 |
| 31 | | | | | | | | 9350 | --- | 13200 | 5540 | --- |
| TOTAL | | | | | | | | --- | 280260 | 430050 | 280460 | 145010 |
| MEAN | | | | | | | | --- | 9342 | 13870 | 9047 | 4834 |
| MAX | | | | | | | | --- | 14600 | 18900 | 15800 | 8280 |
| MIN | | | | | | | | --- | 6540 | 7880 | 4490 | 2490 |
| AC-FT | | | | | | | | --- | 555900 | 853000 | 556300 | 287600 |

## 12181100 SOUTH FORK CASCADE RIVER AT SOUTH CASCADE GLACIER, NEAR MARBLEMOUNT, WA

LOCATION.--Lat 48°22'13", long 121°04'23", Skagit County, Hydrologic Unit 17110005, Mount Baker National Forest, on left bank at outlet of South Cascade Lake, 10.2 mi (16.4 km) upstream from confluence with North Fork, 21 mi (33.8 km) southeast of Marblemount, and at mile 28.9 (46.5 km).

DRAINAGE AREA.--2.36 $mi^2$ (6.11 $km^2$).

PERIOD OF RECORD.--July 1957 to September 1961 (seasonal records only; published as "near Marblemount"), October 1961 to current year. Prior to October 1960, monthly discharge only published in WSP 1736; dailies on file in Tacoma district office.

GAGE.--Water-stage recorder. Datum of gage is 5,290.61 ft (1,612.578 m) above mean sea level (from U.S. Coast and Geodetic Survey triangulation point). Prior to Sept. 23, 1960, at datum 0.47 ft (0.143 m) lower. Sept. 23, 1960, to Aug. 10, 1964, at datum 1.34 ft (0.408 m) lower.

REMARKS.--Records good. No regulation or diversion above station. Flow originates at South Cascade Glacier.

AVERAGE DISCHARGE.--15 years (water years 1962-76), 25.4 $ft^3/s$ (0.719 $m^3/s$), 146.14 in/yr (3,712 mm/yr), 18,395 acre-ft/yr (22.7 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge recorded, 194 $ft^3/s$ (5.49 $m^3/s$) Oct. 24, 1959; minimum discharge recorded, 0.6 $ft^3/s$ (0.017 $m^3/s$) probably sometime Mar. 21-31, 1964, gage height, 0.16 ft (0.049 m), from recorded range in stage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 101 $ft^3/s$ (2.86 $m^3/s$) Sept. 5, gage height, 2.61 ft (0.796 m); minimum daily, 1.8 $ft^3/s$ (0.051 $m^3/s$) Apr.5, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 42 | 14 | 11 | 9.3 | 6.4 | 3.6 | 2.5 | 3.9 | 15 | 50 | 95 | 78 |
| 2 | 49 | 13 | 23 | 8.2 | 6.2 | 3.2 | 2.3 | 11 | 13 | 47 | 91 | 79 |
| 3 | 56 | 17 | 38 | 7.5 | 6.0 | 2.9 | 2.1 | 15 | 12 | 49 | 95 | 70 |
| 4 | 57 | 37 | 39 | 9.3 | 5.8 | 2.7 | 1.9 | 16 | 12 | 54 | 89 | 68 |
| 5 | 48 | 41 | 22 | 8.5 | 5.7 | 2.5 | 1.8 | 15 | 13 | 62 | 85 | 84 |
| 6 | 44 | 27 | 13 | 7.3 | 5.7 | 2.4 | 1.9 | 11 | 14 | 72 | 84 | 88 |
| 7 | 35 | 22 | 11 | 6.4 | 5.3 | 2.3 | 1.9 | 15 | 17 | 83 | 92 | 67 |
| 8 | 28 | 17 | 13 | 6.6 | 5.0 | 2.1 | 1.8 | 22 | 23 | 95 | 90 | 52 |
| 9 | 24 | 14 | 15 | 6.4 | 5.5 | 2.1 | 2.0 | 26 | 26 | 94 | 81 | 45 |
| 10 | 24 | 12 | 14 | 7.7 | 5.5 | 2.5 | 2.1 | 32 | 34 | 77 | 78 | 43 |
| 11 | 22 | 11 | 11 | 9.3 | 5.7 | 2.6 | 2.4 | 28 | 33 | 68 | 87 | 43 |
| 12 | 20 | 9.6 | 9.3 | 8.2 | 6.8 | 2.6 | 2.4 | 19 | 27 | 67 | 90 | 40 |
| 13 | 18 | 8.9 | 7.7 | 6.4 | 5.7 | 2.7 | 2.4 | 18 | 22 | 62 | 86 | 36 |
| 14 | 16 | 16 | 6.8 | 8.8 | 5.2 | 2.4 | 2.5 | 22 | 18 | 61 | 76 | 39 |
| 15 | 24 | 25 | 7.3 | 15 | 5.0 | 2.3 | 3.0 | 20 | 25 | 70 | 73 | 43 |
| 16 | 24 | 20 | 6.4 | 16 | 7.3 | 2.1 | 2.8 | 23 | 54 | 85 | 72 | 50 |
| 17 | 61 | 14 | 5.7 | 12 | 8.2 | 2.1 | 2.6 | 26 | 55 | 96 | 65 | 54 |
| 18 | 61 | 10 | 5.2 | 10 | 8.8 | 2.3 | 2.6 | 20 | 58 | 95 | 61 | 54 |
| 19 | 43 | 8.0 | 4.7 | 7.7 | 6.2 | 3.0 | 2.4 | 16 | 77 | 89 | 63 | 67 |
| 20 | 36 | 7.7 | 4.6 | 6.4 | 5.0 | 3.5 | 2.8 | 15 | 88 | 88 | 85 | 80 |
| 21 | 29 | 7.2 | 4.4 | 5.7 | 4.2 | 3.7 | 2.7 | 14 | 78 | 81 | 76 | 80 |
| 22 | 25 | 6.7 | 4.3 | 6.0 | 3.4 | 3.3 | 2.5 | 15 | 62 | 70 | 69 | 72 |
| 23 | 21 | 8.5 | 4.3 | 6.0 | 3.5 | 3.7 | 2.4 | 19 | 54 | 74 | 64 | 64 |
| 24 | 18 | 12 | 5.2 | 5.7 | 3.9 | 3.9 | 2.5 | 19 | 48 | 91 | 66 | 59 |
| 25 | 16 | 10 | 7.3 | 5.0 | 3.9 | 4.9 | 2.4 | 18 | 42 | 95 | 87 | 60 |
| 26 | 16 | 9.8 | 14 | 4.7 | 3.9 | 4.4 | 2.3 | 17 | 36 | 94 | 80 | 64 |
| 27 | 16 | 8.3 | 21 | 6.8 | 4.2 | 4.4 | 2.1 | 37 | 34 | 88 | 68 | 66 |
| 28 | 14 | 6.9 | 15 | 16 | 4.7 | 3.9 | 2.1 | 39 | 41 | 81 | 80 | 70 |
| 29 | 14 | 6.2 | 14 | 11 | 4.2 | 3.4 | 2.1 | 28 | 57 | 91 | 76 | 67 |
| 30 | 14 | 7.3 | 16 | 7.9 | --- | 2.9 | 2.4 | 23 | 57 | 96 | 71 | 62 |
| 31 | 14 | --- | 12 | 6.8 | --- | 2.7 | --- | 18 | --- | 95 | 72 | --- |
| TOTAL | 929 | 427.1 | 385.2 | 258.6 | 156.9 | 93.1 | 69.7 | 620.9 | 1145 | 2420 | 2447 | 1844 |
| MEAN | 30.0 | 14.2 | 12.4 | 8.34 | 5.41 | 3.00 | 2.32 | 20.0 | 38.2 | 78.1 | 78.9 | 61.5 |
| MAX | 61 | 41 | 39 | 16 | 8.8 | 4.9 | 3.0 | 39 | 88 | 96 | 95 | 88 |
| MIN | 14 | 6.2 | 4.3 | 4.7 | 3.4 | 2.1 | 1.8 | 3.9 | 12 | 47 | 61 | 36 |
| CFSM | 12.7 | 6.02 | 5.25 | 3.53 | 2.29 | 1.27 | .98 | 8.47 | 16.2 | 33.1 | 33.4 | 26.1 |
| IN. | 14.64 | 6.73 | 6.07 | 4.07 | 2.47 | 1.47 | 1.10 | 9.78 | 18.04 | 38.13 | 38.56 | 29.05 |
| AC-FT | 1840 | 847 | 764 | 513 | 311 | 185 | 138 | 1230 | 2270 | 4800 | 4850 | 3660 |

CAL YR 1975 TOTAL 9704.7 MEAN 26.6 MAX 171 MIN 1.2 CFSM 11.3 IN 152.91 AC-FT 19250
WTR YR 1976 TOTAL 10796.5 MEAN 29.5 MAX 96 MIN 1.8 CFSM 12.5 IN 170.11 AC-FT 21410

## 12181200 SALIX CREEK AT SOUTH CASCADE GLACIER, NEAR MARBLEMOUNT, WA

LOCATION.--Lat 48°22'16", long 121°04'35", in SE¼ sec.2, T.33 N., R.13 E.(unsurveyed), Skagit County, Hydrologic Unit 17110005, Mount Baker National Forest, on left bank 900 ft (274 m) west of South Cascade Lake, 0.5 mi (0.8 km) upstream from mouth, and 21 mi (33.8 km) southeast of Marblemount.

DRAINAGE AREA.--0.078 mi² (0.202 km²).

PERIOD OF RECORD.--June to November 1961, May 1962 to January 1964 (fragmentary), May 1964 to November 1965, March 1966 to October 1973, July 1974 to October 1975, May to September 1976.

GAGE.--Water-stage recorder. Altitude of gage is 5,200 ft (1,585 m), from topographic map.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--9 years (water years 1965, 1967-73, 1975), 0.61 ft³/s (0.0173 m³/s), 106.20 in/yr (2,697 mm/yr), 442 acre-ft/yr (0.545 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge recorded, 29 ft³/s (0.82 m³/s) Feb. 3, 1963, gage height, 3.43 ft (1.045 m), from rating curve extended above 9 ft³/s (0.25 m³/s); minimum, 0.02 ft³/s (0.001 m³/s) between Aug. 24, and 29, 1961, Aug. 29, 30, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9.2 ft³/s (0.26 m³/s) July 16, gage height, 1.49 ft (0.454 m); minimum, not determined, occurred during period of missing record.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .03 | --- | | | | | | --- | .46 | 2.2 | 1.8 | .39 |
| 2 | .04 | --- | | | | | | --- | .39 | 2.3 | 2.2 | .37 |
| 3 | .27 | --- | | | | | | --- | .37 | 2.4 | 1.7 | .35 |
| 4 | .40 | 2.4 | | | | | | --- | .44 | 3.0 | 1.4 | .33 |
| 5 | 1.6 | 1.4 | | | | | | --- | .59 | 3.5 | 1.3 | 1.0 |
| 6 | .43 | .55 | | | | | | --- | 1.2 | 4.3 | 1.4 | .87 |
| 7 | .38 | .38 | | | | | | 1.7 | 1.8 | 3.9 | 1.8 | .56 |
| 8 | .28 | .34 | | | | | | 2.2 | 2.0 | 5.0 | 1.3 | .37 |
| 9 | .36 | --- | | | | | | 2.3 | 2.4 | 2.8 | 1.1 | .28 |
| 10 | .20 | --- | | | | | | 2.7 | 2.5 | 2.2 | 1.2 | .25 |
| 11 | .13 | --- | | | | | | 1.7 | 1.7 | 2.3 | 1.1 | .25 |
| 12 | .10 | --- | | | | | | .97 | 1.2 | 2.2 | 1.1 | .23 |
| 13 | .09 | --- | | | | | | 1.7 | .83 | 2.0 | .97 | .20 |
| 14 | .85 | --- | | | | | | 1.8 | .76 | 2.8 | .83 | .23 |
| 15 | .80 | --- | | | | | | 1.7 | 2.6 | 3.8 | .80 | .19 |
| 16 | --- | --- | | | | | | 2.7 | 3.4 | 4.6 | .83 | .17 |
| 17 | --- | --- | | | | | | 2.3 | 3.1 | 4.1 | .67 | .17 |
| 18 | --- | --- | | | | | | 1.2 | 3.6 | 3.5 | .59 | .16 |
| 19 | --- | --- | | | | | | 1.1 | 4.0 | 3.5 | 1.8 | .14 |
| 20 | --- | --- | | | | | | .94 | 2.9 | 2.9 | 1.5 | .14 |
| 21 | --- | --- | | | | | | 1.1 | 2.3 | 2.3 | .70 | .13 |
| 22 | --- | --- | | | | | | 1.6 | 1.7 | 1.8 | .61 | .14 |
| 23 | --- | --- | | | | | | 1.7 | 1.6 | 3.5 | .53 | .14 |
| 24 | --- | --- | | | | | | 1.2 | 1.4 | 3.4 | .59 | .12 |
| 25 | --- | --- | | | | | | 1.0 | 1.0 | 3.1 | 1.2 | .12 |
| 26 | --- | --- | | | | | | 1.2 | .83 | 3.1 | .83 | .11 |
| 27 | --- | --- | | | | | | 3.9 | 1.6 | 2.3 | .94 | .11 |
| 28 | --- | --- | | | | | | 1.7 | 3.1 | 2.6 | .73 | .10 |
| 29 | --- | --- | | | | | | 1.0 | 3.1 | 2.9 | .51 | .10 |
| 30 | --- | --- | | | | | | .73 | 2.4 | 2.4 | .46 | .10 |
| 31 | --- | --- | | | | | | .56 | --- | 2.6 | .41 | --- |
| TOTAL | --- | --- | | --- | | | | --- | 55.27 | 93.3 | 32.90 | 7.82 |
| MEAN | --- | --- | | --- | | | | --- | 1.84 | 3.01 | 1.06 | .26 |
| MAX | --- | --- | | --- | | | | --- | 4.0 | 5.0 | 2.2 | 1.0 |
| MIN | --- | --- | | --- | | | | --- | .37 | 1.8 | .41 | .10 |
| CFSM | --- | --- | | --- | | | | --- | 23.0 | 37.6 | 13.3 | 3.25 |
| IN. | --- | --- | | --- | | | | --- | 25.38 | 42.85 | 15.11 | 3.59 |
| AC-FT | --- | --- | | --- | | | | --- | 110 | 185 | 65 | 16 |

## 12182500 CASCADE RIVER AT MARBLEMOUNT, WA

LOCATION.--Lat 48°31'37", long 121°24'50", in NW¼NW¼ sec.17, T.35 N., R.11 E., Skagit County, Hydrologic Unit 17110005, on left bank at Fish Hatchery Road bridge 0.5 mi (0.8 km) upstream from Jordan Creek, 0.7 mi (1.1 km) east of Marblemount, and at mile 0.9 (1.4 km). Prior to July 1, 1976, at site 2 mi (3.2 km) upstream.

DRAINAGE AREA.--172 mi² (445 km²), prior to July 1, 1976, 168 mi² (434 km²).

PERIOD OF RECORD.--September 1928 to current year. Water temperatures May 1952 to November 1963, September 1964, October 1965 to September 1973.

REVISED RECORDS.--WSP 832: 1936: WSP 1932: Drainage area (at site and datum then in use).

GAGE.--Water-stage recorder. Altitude of gage is 330 ft (101 m) above mean sea level (from topographic map). Prior to July 1, 1976, water-stage recorder at site 2 mi (3.2 km) upstream at different datum.

REMARKS.--Records good except those for period Dec. 3 to July 1, which are poor. No regulation or diversion above station.

AVERAGE DISCHARGE.--48 years, 1,040 ft³/s (29.45 m³/s) 84.07 in/yr (2,135 mm/yr) 753,500 acre-ft/yr (929 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,700 ft³/s (530 m³/s) Nov. 20, 1962, from rating curve extended above 5,600 ft³/s (159 m³/s); maximum gage height, 11.47 ft (3.496 m) Nov. 27, 1949 at site and datum then in use; minimum discharge, 118 ft³/s (3.34 m³/s) Nov. 30, 1952; minimum gage height, 1.11 ft (0.338 m) Feb. 8, 1937 at site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of about 1815 reached a stage of approximately 22 ft (6.7 m), at site and datum then in use, discharge, 46,000 ft³/s (1,300 m³/s). Records for other floods, prior to establishment of station, are given in WSP 1527.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base 3,600 ft³/s (102 m³/s) and maximum(*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 18 | 0100 | 4,270 | 121 | 6.33 | 1.929 | May 10 | ---- | unknown | ---- | unknown | --- |
| Nov. 15 | 0800 | 3,860 | 109 | 6.08 | 1.853 | June 19 | 0330 | 3,750 | 106 | 7.94 | 2.420 |
| Nov. 24 | 1200 | 4,530 | 128 | 6.48 | 1.975 | July 8 | 1200 | 5,900 | 167 | 15.81 | 4.819 |
| Dec. 4 | 0800 | *11,500 | 326 | *a10.69 | 3.258 | July 16 | 2300 | 4,080 | 116 | 15.35 | 4.679 |

Minimum discharge, 282 ft³/s (7.99 m³/s) Oct. 14, gage height, 1.96 ft (0.597 m) at site and datum then then in use.

a At site and datum then in use.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 374 | 1160 | 1610 | 1080 | 1110 | 382 | 362 | 1380 | 1040 | 2100 | 2180 | 1390 |
| 2 | 406 | 1810 | 5920 | 925 | 1050 | 368 | 350 | 2060 | 945 | 1920 | 2240 | 1270 |
| 3 | 600 | 2470 | 11000 | 845 | 975 | 360 | 348 | 1800 | 885 | 2000 | 2430 | 1060 |
| 4 | 640 | 2970 | 10000 | 880 | 855 | 348 | 365 | 1630 | 835 | 2410 | 2000 | 1040 |
| 5 | 720 | 2500 | 4330 | 895 | 766 | 342 | 438 | 1540 | 835 | 2830 | 1890 | 1450 |
| 6 | 740 | 1920 | 2470 | 774 | 722 | 338 | 575 | 1350 | 965 | 3690 | 1800 | 1490 |
| 7 | 480 | 1590 | 1790 | 714 | 686 | 336 | 592 | 1710 | 1230 | 4390 | 2150 | 1160 |
| 8 | 416 | 1280 | 2020 | 690 | 646 | 330 | 680 | 2580 | 1730 | 4880 | 2000 | 928 |
| 9 | 388 | 1070 | 2970 | 634 | 612 | 330 | 770 | 3100 | 1880 | 2940 | 1670 | 819 |
| 10 | 392 | 912 | 2320 | 616 | 584 | 350 | 750 | 3700 | 2140 | 2040 | 1630 | 805 |
| 11 | 354 | 806 | 1690 | 612 | 567 | 352 | 920 | 2970 | 1830 | 1890 | 1830 | 812 |
| 12 | 321 | 735 | 1380 | 574 | 624 | 340 | 860 | 2030 | 1650 | 1940 | 1860 | 770 |
| 13 | 303 | 745 | 1150 | 536 | 578 | 332 | 810 | 2120 | 1360 | 1680 | 1740 | 718 |
| 14 | 382 | 1910 | 1000 | 551 | 554 | 322 | 770 | 2170 | 1180 | 1720 | 1490 | 791 |
| 15 | 801 | 3000 | 905 | 920 | 539 | 318 | 730 | 1920 | 1700 | 2090 | 1430 | 812 |
| 16 | 725 | 1940 | 805 | 1900 | 576 | 316 | 690 | 2210 | 3110 | 2980 | 1590 | 872 |
| 17 | 3330 | 1410 | 746 | 1770 | 620 | 340 | 650 | 2340 | 2860 | 3210 | 1320 | 896 |
| 18 | 2690 | 1130 | 710 | 1470 | 624 | 402 | 610 | 1780 | 3270 | 2810 | 1210 | 864 |
| 19 | 1920 | 964 | 674 | 1200 | 554 | 412 | 600 | 1530 | 3430 | 2450 | 1260 | 960 |
| 20 | 1630 | 858 | 642 | 1050 | 512 | 392 | 710 | 1390 | 2970 | 2490 | 2010 | 1020 |
| 21 | 1160 | 778 | 604 | 970 | 485 | 372 | 670 | 1350 | 2480 | 2130 | 1450 | 1000 |
| 22 | 895 | 731 | 584 | 945 | 467 | 385 | 620 | 1510 | 2110 | 1640 | 1240 | 944 |
| 23 | 750 | 991 | 560 | 890 | 470 | 395 | 560 | 1660 | 1870 | 2090 | 1160 | 872 |
| 24 | 635 | 3320 | 738 | 800 | 464 | 435 | 590 | 1510 | 1720 | 2810 | 1210 | 833 |
| 25 | 680 | 2080 | 770 | 734 | 446 | 461 | 540 | 1520 | 1600 | 2580 | 1800 | 840 |
| 26 | 685 | 1630 | 2230 | 690 | 428 | 420 | 520 | 1370 | 1330 | 2380 | 1540 | 864 |
| 27 | 630 | 1280 | 2110 | 2200 | 418 | 400 | 470 | 2810 | 1300 | 1970 | 1240 | 840 |
| 28 | 590 | 1030 | 1480 | 1760 | 415 | 380 | 560 | 2130 | 1720 | 1780 | 1410 | 856 |
| 29 | 1050 | 875 | 1630 | 1500 | 398 | 360 | 678 | 1640 | 2690 | 2280 | 1380 | 819 |
| 30 | 1770 | 851 | 1820 | 1310 | --- | 352 | 905 | 1340 | 2420 | 2060 | 1270 | 770 |
| 31 | 1170 | --- | 1360 | 1170 | --- | 380 | --- | 1170 | --- | 2090 | 1290 | --- |
| TOTAL | 27627 | 44746 | 68018 | 31605 | 17745 | 11350 | 18693 | 59320 | 55085 | 76270 | 50720 | 28565 |
| MEAN | 891 | 1492 | 2194 | 1020 | 612 | 366 | 623 | 1914 | 1836 | 2460 | 1636 | 952 |
| MAX | 3330 | 3320 | 11000 | 2200 | 1110 | 461 | 920 | 3700 | 3430 | 4880 | 2430 | 1490 |
| MIN | 303 | 731 | 560 | 536 | 398 | 316 | 348 | 1170 | 835 | 1640 | 1160 | 718 |
| AC-FT | 54800 | 88750 | 134900 | 62690 | 35200 | 22510 | 37080 | 117700 | 109300 | 151300 | 100600 | 56660 |

CAL YR 1975 TOTAL 436639 MEAN 1196 MAX 11000 MIN 265 AC-FT 866100
WTR YR 1976 TOTAL 489744 MEAN 1338 MAX 11000 MIN 303 AC-FT 971400

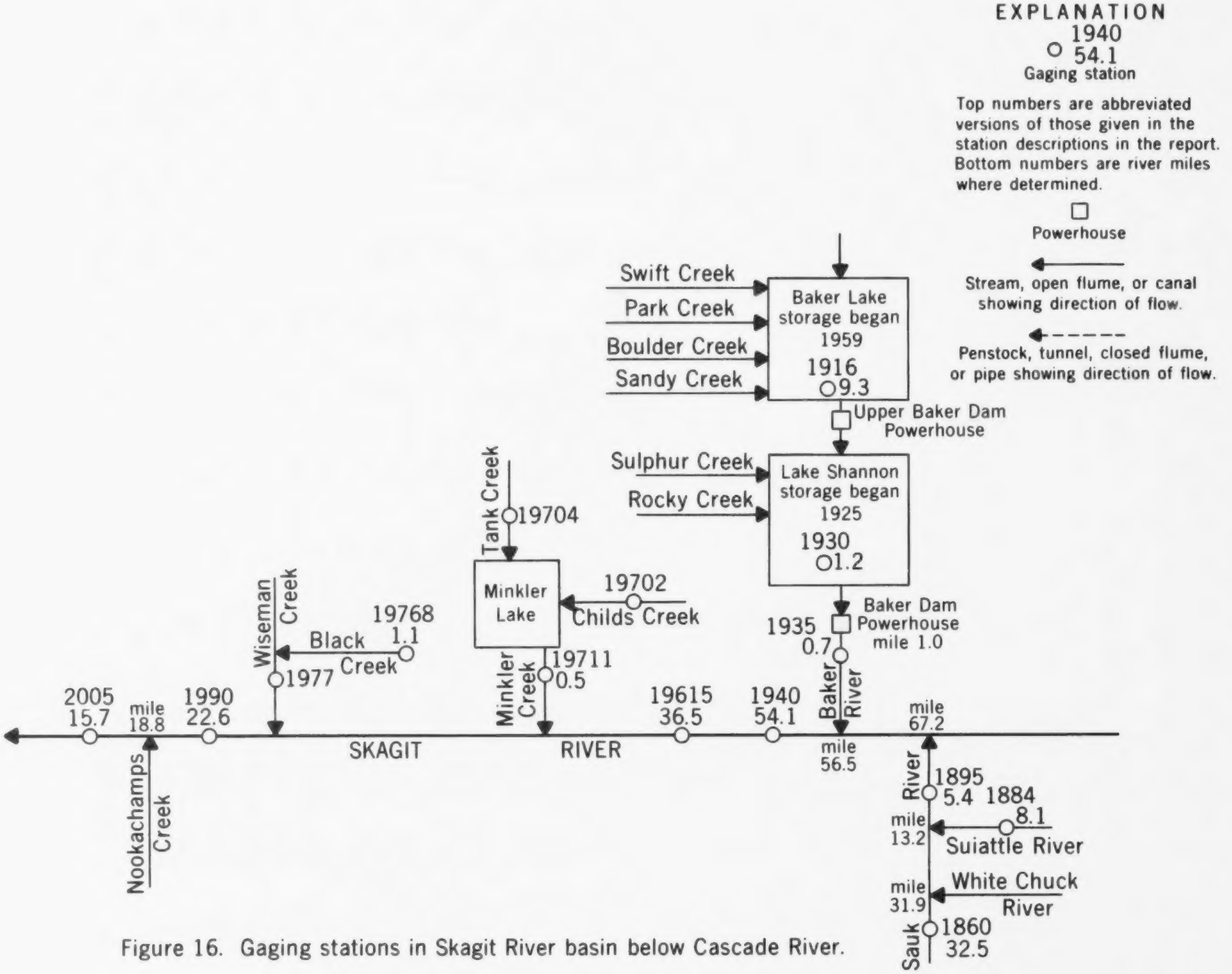
EXPLANATION
1940
54.1
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Swift Creek
Park Creek
Boulder Creek
Sandy Creek
Baker Lake storage began 1959
1916
9.3
Upper Baker Dam Powerhouse
Sulphur Creek
Rocky Creek
Lake Shannon storage began 1925
1930
1.2
Baker Dam Powerhouse mile 1.0
1935
0.7
Baker River
Tank Creek
19704
Minkler Lake
19702
Childs Creek
Minkler Creek
19711
0.5
Wiseman Creek
19768
1.1
Black Creek
1977
2005
15.7
mile 18.8
1990
22.6
SKAGIT
RIVER
19615
36.5
1940
54.1
mile 56.5
mile 67.2
Nookachamps Creek
Sauk River
1895
5.4
1884
8.1
mile 13.2
Suiattle River
mile 31.9
White Chuck River
1860
32.5

Figure 16. Gaging stations in Skagit River basin below Cascade River.

## 12186000 SAUK RIVER ABOVE WHITE CHUCK RIVER NEAR DARRINGTON, WA

LOCATION.--Lat 48°10'08", long 121°28'10", on north line NE¼NE¼ sec.23, T.31 N., R.10 E., Snohomish County, Hydrologic Unit 17110006, Mount Baker National Forest, on right bank 0.6 mi (1.0 km) upstream from White Chuck River, 8.4 mi (13.5 km) southeast of Darrington and at mile 32.5 (52.3 m).

DRAINAGE AREA.--152 mi² (394 km²).

PERIOD OF RECORD.--August to November 1910 (fragmentary gage heights only), October 1917 to September 1922, August 1928 to current year.

REVISED RECORDS.--WSP 752: 1932. WSP 1286: 1918(M), 1920(M), 1921, 1922(M), 1932(M), 1934(M), 1946-47(M), 1949.

GAGE.--Water-stage recorder. Altitude of gage is 930 ft (283 m), from river-profile map. Prior to Nov. 18, 1910, nonrecording gage 0.5 mi (0.8 km) downstream at different datum.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--53 years (1917-22, 1928-76), 1,157 ft³/s (32.77 m³/s), 103.37 in/yr (2,626 mm/yr), 838,200 acre-ft/yr (1,030 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,200 ft³/s (855 m³/s) Nov. 27, 1949, gage height, 14.90 ft (4.542 m), from rating curve extended above 15,000 ft³/s (425 m³/s); minimum, 115 ft³/s (3.26 m³/s) Nov. 15, 16, 30, Dec. 1, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (127 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 2 | 1900 | 4,690 | 133 | 6.42 | 1.957 | Dec. 26 | 1600 | 5,880 | 167 | 7.00 | 2.134 |
| Nov. 15 | 0900 | 5,200 | 147 | 6.66 | 2.030 | Jan. 27 | 0900 | 4,790 | 136 | 6.56 | 1.999 |
| Dec. 4 | 0600 | *19,400 | 549 | *11.55 | 3.520 | | | | | | |

Minimum discharge, 299 ft³/s (8.47 m³/s) Oct. 1, gage height, 2.71 ft (0.826 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 299 | 1670 | 3070 | 1450 | 1250 | 417 | 550 | 1700 | 1360 | 2230 | 1720 | 1060 |
| 2 | 308 | 3340 | 7600 | 1250 | 1170 | 395 | 490 | 2580 | 1250 | 2030 | 1690 | 987 |
| 3 | 435 | 4080 | 14000 | 1150 | 1090 | 380 | 460 | 2280 | 1140 | 2090 | 1810 | 846 |
| 4 | 706 | 3310 | 13400 | 1540 | 976 | 370 | 480 | 1970 | 1090 | 2300 | 1600 | 790 |
| 5 | 758 | 2670 | 4870 | 1570 | 874 | 345 | 570 | 1800 | 1090 | 2510 | 1510 | 969 |
| 6 | 856 | 2350 | 2970 | 1210 | 818 | 340 | 840 | 1670 | 1200 | 2910 | 1470 | 1310 |
| 7 | 580 | 2170 | 2300 | 1050 | 769 | 336 | 840 | 1840 | 1450 | 3230 | 1740 | 1100 |
| 8 | 528 | 1730 | 2790 | 992 | 734 | 331 | 1020 | 2550 | 1840 | 3620 | 1570 | 830 |
| 9 | 484 | 1370 | 2730 | 928 | 690 | 331 | 1200 | 3030 | 2000 | 2930 | 1340 | 696 |
| 10 | 568 | 1140 | 2240 | 974 | 650 | 390 | 1170 | 3430 | 2260 | 2310 | 1310 | 626 |
| 11 | 495 | 990 | 1810 | 1110 | 694 | 411 | 1280 | 3390 | 2030 | 2130 | 1450 | 612 |
| 12 | 435 | 886 | 1520 | 880 | 1090 | 375 | 1180 | 2610 | 2120 | 2130 | 1480 | 633 |
| 13 | 395 | 863 | 1330 | 759 | 881 | 360 | 1050 | 2540 | 1840 | 1940 | 1370 | 605 |
| 14 | 395 | 2810 | 1180 | 1060 | 821 | 345 | 950 | 2460 | 1560 | 1920 | 1160 | 612 |
| 15 | 1140 | 4190 | 1100 | 2860 | 754 | 336 | 880 | 2210 | 1830 | 2160 | 1180 | 605 |
| 16 | 1010 | 2510 | 978 | 3060 | 1080 | 336 | 798 | 2400 | 2700 | 2600 | 1340 | 626 |
| 17 | 2660 | 1710 | 885 | 2310 | 1040 | 417 | 742 | 2630 | 2670 | 2820 | 1110 | 647 |
| 18 | 2670 | 1330 | 843 | 1860 | 915 | 633 | 696 | 2120 | 3110 | 2550 | 1030 | 619 |
| 19 | 2610 | 1110 | 808 | 1480 | 750 | 680 | 668 | 1850 | 3480 | 2230 | 996 | 633 |
| 20 | 2440 | 966 | 766 | 1260 | 647 | 600 | 838 | 1700 | 3060 | 2230 | 1490 | 661 |
| 21 | 1640 | 863 | 718 | 1130 | 591 | 560 | 750 | 1630 | 2740 | 2020 | 1200 | 668 |
| 22 | 1250 | 814 | 688 | 1090 | 552 | 610 | 696 | 1750 | 2400 | 1680 | 1020 | 647 |
| 23 | 1010 | 1270 | 675 | 1060 | 570 | 680 | 647 | 1880 | 2140 | 1790 | 942 | 598 |
| 24 | 849 | 3270 | 1160 | 950 | 577 | 870 | 696 | 1760 | 2020 | 2260 | 951 | 558 |
| 25 | 958 | 2160 | 1280 | 858 | 546 | 990 | 703 | 1900 | 1940 | 2230 | 1310 | 546 |
| 26 | 1010 | 1940 | 4100 | 823 | 510 | 840 | 661 | 1760 | 1670 | 2130 | 1370 | 546 |
| 27 | 958 | 1520 | 3100 | 3490 | 486 | 710 | 682 | 2610 | 1600 | 1850 | 1090 | 558 |
| 28 | 894 | 1200 | 1980 | 2320 | 480 | 610 | 758 | 2510 | 1870 | 1650 | 1070 | 558 |
| 29 | 1600 | 990 | 2190 | 1810 | 444 | 530 | 915 | 1970 | 2610 | 1800 | 1070 | 546 |
| 30 | 2880 | 998 | 2530 | 1530 | --- | 510 | 1190 | 1740 | 2540 | 1690 | 1030 | 510 |
| 31 | 1740 | --- | 1810 | 1340 | --- | 630 | --- | 1490 | --- | 1690 | 1040 | --- |
| TOTAL | 34561 | 56220 | 87421 | 45154 | 22449 | 15668 | 24400 | 67760 | 60610 | 69660 | 40459 | 21202 |
| MEAN | 1115 | 1874 | 2820 | 1457 | 774 | 505 | 813 | 2186 | 2020 | 2247 | 1305 | 707 |
| MAX | 2880 | 4190 | 14000 | 3490 | 1250 | 990 | 1280 | 3430 | 3480 | 3620 | 1810 | 1310 |
| MIN | 299 | 814 | 675 | 759 | 444 | 331 | 460 | 1490 | 1090 | 1650 | 942 | 510 |
| CFSM | 7.34 | 12.3 | 18.6 | 9.59 | 5.09 | 3.32 | 5.35 | 14.4 | 13.3 | 14.8 | 8.59 | 4.65 |
| IN. | 8.46 | 13.76 | 21.39 | 11.05 | 5.49 | 3.83 | 5.97 | 16.58 | 14.83 | 17.05 | 9.90 | 5.19 |
| AC-FT | 68550 | 111500 | 173400 | 89560 | 44530 | 31080 | 48400 | 134400 | 120200 | 138200 | 80250 | 42050 |

CAL YR 1975 TOTAL 488457 MEAN 1338 MAX 14000 MIN 299 CFSM 8.80 IN 119.54 AC-FT 968900
WTR YR 1976 TOTAL 545564 MEAN 1491 MAX 14000 MIN 299 CFSM 9.81 IN 133.52 AC-FT 1082000

## SKAGIT RIVER BASIN

### 12188400 SUIATTLE RIVER ABOVE BIG CREEK NEAR DARRINGTON, WA

LOCATION.--Lat 48°20'32", long 121°27'08", in SW¼SE¼ sec.13, T.33 N., R.10 E., Skagit County, Hydrologic Unit 17110006, on right bank 0.3 mi (0.5 km) upstream from Big Creek, 1.5 mi (2.4 km) downstream from Tenas Creek, 9.5 mi (15.3 km) northeast of Darrington, and at mile 8.1 (13.0 km).

DRAINAGE AREA.--307 mi² (795 km²).

PERIOD OF RECORD.--December 1970 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 640 ft (195 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record, which are fair.

AVERAGE DISCHARGE.--5 years, 1,987 ft³/s (56.27 m³/s) 87.89 in/yr (2,232 mm/yr), 1,440,000 acre-ft/yr (1,780 hm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,700 ft³/s (841 m³/s) Dec. 4, 1975, gage height, 12.88 ft (3.926 m); minimum daily, 400 ft³/s (11.3 m³/s) Jan. 4, 5, Feb. 5, 1972.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 7,000 ft³/s (198 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Nov. 24 | 1200 | 7,840 | 222 | 8.48 | 2.585 |
| Dec. 4 | 0500 | *29,700 | 841 | *12.88 | 3.926 |
| Dec. 26 | unknown | unknown | ---- | unknown | ----- |

Minimum discharge, 555 cfs (15.7 m³/s) Oct. 14, gage height, 3.11 ft (0.948 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 702 | 1880 | 3390 | 2130 | 1800 | 818 | 797 | 2200 | 2200 | 3520 | 3560 | 2210 |
| 2 | 741 | 2610 | 13000 | 1960 | 1730 | 772 | 766 | 4000 | 2000 | 3200 | 3400 | 2160 |
| 3 | 964 | 3250 | 20200 | 1830 | 1670 | 760 | 766 | 3500 | 1850 | 3310 | 3660 | 1890 |
| 4 | 1130 | 3730 | 17300 | 2090 | 1520 | 724 | 800 | 3000 | 1750 | 3610 | 3300 | 1820 |
| 5 | 1220 | 3300 | 6150 | 2160 | 1400 | 718 | 880 | 2700 | 1700 | 4010 | 3120 | 2170 |
| 6 | 1110 | 2910 | 3990 | 1880 | 1360 | 712 | 1000 | 2600 | 1900 | 4820 | 3030 | 2390 |
| 7 | 790 | 2900 | 3260 | 1650 | 1310 | 700 | 1000 | 2800 | 2200 | 5500 | 3600 | 1940 |
| 8 | 720 | 2700 | 3500 | 1500 | 1260 | 688 | 1100 | 3800 | 2700 | 6280 | 3310 | 1650 |
| 9 | 690 | 2440 | 3750 | 1490 | 1210 | 694 | 1250 | 4500 | 3000 | 4840 | 2890 | 1480 |
| 10 | 734 | 2050 | 3100 | 1410 | 1150 | 760 | 1200 | 5200 | 3400 | 3880 | 2770 | 1400 |
| 11 | 654 | 1640 | 2700 | 1480 | 1160 | 766 | 1350 | 5000 | 3100 | 3700 | 3000 | 1390 |
| 12 | 600 | 1570 | 2400 | 1410 | 1300 | 718 | 1300 | 4000 | 3000 | 3730 | 3030 | 1370 |
| 13 | 575 | 1550 | 2200 | 1340 | 1170 | 700 | 1200 | 3900 | 2700 | 3430 | 2880 | 1280 |
| 14 | 585 | 2850 | 2000 | 1420 | 1130 | 682 | 1150 | 3700 | 2400 | 3360 | 2530 | 1330 |
| 15 | 1410 | 4160 | 1800 | 2460 | 1080 | 670 | 1100 | 3500 | 2800 | 3800 | 2460 | 1330 |
| 16 | 1210 | 2920 | 1650 | 3570 | 1250 | 670 | 1020 | 3700 | 4500 | 4610 | 2580 | 1270 |
| 17 | 2610 | 2470 | 1500 | 3130 | 1290 | 736 | 980 | 4000 | 4400 | 5060 | 2210 | 1290 |
| 18 | 2680 | 2120 | 1450 | 2690 | 1260 | 825 | 960 | 3400 | 4900 | 4600 | 2200 | 1270 |
| 19 | 2420 | 1920 | 1400 | 2280 | 1160 | 839 | 900 | 2900 | 5600 | 4120 | 2150 | 1350 |
| 20 | 2460 | 1740 | 1330 | 2030 | 1080 | 797 | 1050 | 2600 | 5000 | 4200 | 2690 | 1410 |
| 21 | 1950 | 1630 | 1290 | 1880 | 1020 | 778 | 1000 | 2500 | 4300 | 3800 | 2260 | 1410 |
| 22 | 1620 | 1560 | 1250 | 1760 | 993 | 837 | 940 | 2700 | 3900 | 3220 | 2060 | 1370 |
| 23 | 1410 | 1850 | 1220 | 1650 | 1000 | 846 | 888 | 2900 | 3400 | 3530 | 2000 | 1310 |
| 24 | 1240 | 4960 | 1700 | 1520 | 993 | 972 | 937 | 2900 | 3200 | 4280 | 2030 | 1260 |
| 25 | 1350 | 3160 | 1800 | 1420 | 958 | 1030 | 923 | 2900 | 3000 | 4130 | 2680 | 1250 |
| 26 | 1400 | 2850 | 4000 | 1380 | 916 | 946 | 895 | 2800 | 2700 | 3980 | 2440 | 1250 |
| 27 | 1300 | 2490 | 3420 | 3360 | 909 | 885 | 937 | 4000 | 2500 | 3590 | 2080 | 1240 |
| 28 | 1230 | 2170 | 2480 | 2540 | 895 | 853 | 1020 | 3800 | 2400 | 3260 | 2170 | 1250 |
| 29 | 1840 | 1950 | 2610 | 2250 | 860 | 804 | 1200 | 3200 | 3500 | 3630 | 2170 | 1250 |
| 30 | 2690 | 1800 | 3040 | 2030 | --- | 797 | 1500 | 2700 | 3840 | 3500 | 2060 | 1180 |
| 31 | 1990 | --- | 2400 | 1880 | --- | 860 | --- | 2400 | --- | 3520 | 2110 | --- |
| TOTAL | 42025 | 75160 | 121340 | 61580 | 34834 | 24360 | 30739 | 103800 | 94140 | 124100 | 82430 | 45170 |
| MEAN | 1356 | 2505 | 3914 | 1986 | 1201 | 786 | 1024 | 3348 | 3138 | 4003 | 2659 | 1506 |
| MAX | 2690 | 4960 | 20200 | 3570 | 1800 | 1030 | 1500 | 5200 | 5600 | 6280 | 3660 | 2390 |
| MIN | 575 | 1550 | 1220 | 1340 | 860 | 670 | 766 | 2200 | 1700 | 3200 | 2000 | 1180 |
| CFSM | 4.42 | 8.16 | 12.7 | 6.47 | 3.91 | 2.56 | 3.34 | 10.9 | 10.2 | 13.0 | 8.66 | 4.91 |
| IN. | 5.09 | 9.11 | 14.70 | 7.46 | 4.22 | 2.95 | 3.73 | 12.58 | 11.41 | 15.06 | 9.99 | 5.47 |
| AC-FT | 83360 | 149100 | 240700 | 122100 | 69090 | 48320 | 61070 | 205900 | 186700 | 246200 | 163500 | 89590 |

CAL YR 1975 TOTAL 786605 MEAN 2154 MAX 20200 MIN 535 CFSM 7.02 IN 95.25 AC-FT 1559000
WTR YR 1976 TOTAL 839728 MEAN 2294 MAX 20200 MIN 575 CFSM 7.47 IN 101.75 AC-FT 1666000

NOTE.--No gage-height record Apr. 28 to June 29.

## 12189500 SAUK RIVER NEAR SAUK, WA

LOCATION.--Lat 48°25'29", long 121°34'02", in NW¼NW¼ sec.19, T.34 N., R.10 E., Skagit County, Hydrologic Unit 17110006, on left bank, 4.4 mi (7.1 km) southeast of Rockport, 7.6 mi (12.2 km) southeast of Sauk, 7.8 mi (12.6 km) downstream from Suiattle River, and at mile 5.4 (8.7 km).

DRAINAGE AREA.--714 mi² (1,849 km²).

PERIOD OF RECORD.--August to October 1910 (fragmentary gage heights), March 1911 to August 1912, July 1928 to current year. Published as "near Suiattle Crossing, near Sauk" 1910-12. Water temperatures March 1970 to April 1971.

REVISED RECORDS.--WSP 1286: 1929, 1937, 1939.

GAGE.--Water-stage recorder. Datum of gage is 266 ft (81.1 m) above mean sea level (from river-profile survey). Prior to Aug. 4, 1912, nonrecording gages at several sites 1 mi (1.6 km) downstream to 5 mi (8.0 km) upstream from present site at various datums. July 24, 1928, to Sept. 10, 1929, nonrecording gage at present site and datum.

REMARKS.--Records good. No regulation. Small diversion for millpond at Darrington and for domestic use.

AVERAGE DISCHARGE.--48 years (water years 1929-76), 4,428 ft³/s (125.4 m³/s), 84.22 in/yr (2,139 mm/yr), 3,208,000 acre-ft/yr (3,960 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,400 ft³/s (2,330 m³/s) Nov. 27, 1949, gage height, 16.93 ft (5.160 m); minimum, 572 ft³/s (16.2 m³/s) Dec. 5, 1929, but may have been less during period of ice effect Jan. 10-27, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 16,000 ft³/s (453 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 2 | 2200 | 17,400 | 493 | 8.69 | 2.649 | Dec. 4 | 0800 | *65,300 | 1,850 | *15.03 | 4.581 |
| Nov. 15 | 1000 | 21,600 | 612 | 9.46 | 2.883 | Dec. 26 | 1900 | 19,900 | 564 | 9.16 | 2.792 |
| Nov. 24 | 1500 | 20,100 | 569 | 9.20 | 2.804 | | | | | | |

Minimum discharge, 1,280 ft³/s (36.2 m³/s) Oct. 1. 2, gage height, 3.40 ft (1.036 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1330 | 6480 | 11600 | 5750 | 5050 | 2320 | 2630 | 6060 | 5350 | 8200 | 7350 | 4400 |
| 2 | 1350 | 10800 | 35700 | 5100 | 4750 | 2190 | 2440 | 8720 | 4850 | 7350 | 6960 | 4270 |
| 3 | 1690 | 14700 | 50600 | 4720 | 4470 | 2110 | 2350 | 7640 | 4620 | 7500 | 7570 | 3670 |
| 4 | 2280 | 12600 | 48600 | 6000 | 4050 | 2000 | 2420 | 6780 | 4100 | 8360 | 6750 | 3440 |
| 5 | 2420 | 9920 | 14300 | 6570 | 3670 | 1990 | 2680 | 6420 | 4030 | 9180 | 6330 | 4030 |
| 6 | 3260 | 9220 | 11300 | 5120 | 3540 | 1940 | 3600 | 5840 | 4370 | 10500 | 6090 | 5170 |
| 7 | 2050 | 9040 | 8830 | 4520 | 3380 | 1900 | 3630 | 6510 | 5150 | 11800 | 7230 | 4300 |
| 8 | 1900 | 7440 | 10500 | 4470 | 3240 | 1870 | 4250 | 9000 | 6480 | 13300 | 6870 | 3320 |
| 9 | 1700 | 6000 | 10600 | 4170 | 3120 | 1860 | 4950 | 10600 | 6870 | 11100 | 5800 | 2870 |
| 10 | 1900 | 5100 | 8840 | 4170 | 2960 | 2050 | 4720 | 11600 | 7990 | 8900 | 5500 | 2630 |
| 11 | 1720 | 4380 | 7170 | 5020 | 2980 | 2270 | 5250 | 11500 | 7230 | 8160 | 6060 | 2590 |
| 12 | 1530 | 3930 | 6120 | 4170 | 4450 | 2050 | 4870 | 9140 | 7080 | 8160 | 6240 | 2570 |
| 13 | 1600 | 3780 | 5500 | 3630 | 3850 | 1990 | 4250 | 8750 | 6300 | 7440 | 5900 | 2470 |
| 14 | 1350 | 11100 | 4870 | 4900 | 3580 | 1900 | 3890 | 8690 | 5450 | 7260 | 5120 | 2560 |
| 15 | 3610 | 16700 | 4570 | 11800 | 3460 | 1870 | 3780 | 7780 | 6650 | 8130 | 4920 | 2560 |
| 16 | 3000 | 10300 | 4170 | 13500 | 4630 | 1840 | 3320 | 8500 | 10700 | 9840 | 5550 | 2590 |
| 17 | 8380 | 7410 | 3820 | 9910 | 4900 | 2130 | 3140 | 9200 | 10100 | 11000 | 4650 | 2680 |
| 18 | 9960 | 5820 | 3670 | 8040 | 4600 | 3140 | 3000 | 7600 | 11300 | 10100 | 4470 | 2610 |
| 19 | 7960 | 5000 | 3520 | 6650 | 3780 | 3180 | 2870 | 6500 | 12500 | 8900 | 4220 | 2700 |
| 20 | 9250 | 4400 | 3380 | 5500 | 3280 | 2740 | 3480 | 6000 | 11300 | 8970 | 5770 | 2870 |
| 21 | 6000 | 3960 | 3240 | 4970 | 2940 | 2650 | 3220 | 5800 | 10100 | 8380 | 4870 | 2890 |
| 22 | 4780 | 3740 | 3120 | 4850 | 2810 | 2740 | 2980 | 6200 | 8860 | 6810 | 4220 | 2810 |
| 23 | 3820 | 5750 | 3100 | 4900 | 2890 | 3000 | 2790 | 6600 | 7950 | 7080 | 3960 | 2650 |
| 24 | 3260 | 14900 | 5000 | 4300 | 2460 | 3500 | 3020 | 6600 | 7260 | 9140 | 3960 | 2510 |
| 25 | 3600 | 10000 | 5220 | 3930 | 2830 | 4350 | 3080 | 6700 | 7020 | 8900 | 5250 | 2450 |
| 26 | 4500 | 8900 | 14100 | 3670 | 2650 | 3440 | 2890 | 6300 | 6030 | 8620 | 5350 | 2440 |
| 27 | 4080 | 7020 | 12200 | 11500 | 2570 | 3100 | 2940 | 9100 | 5720 | 7670 | 4300 | 2450 |
| 28 | 3690 | 5570 | 7850 | 8860 | 2570 | 2810 | 3260 | 8900 | 6560 | 6750 | 4320 | 2470 |
| 29 | 6390 | 4450 | 8300 | 7020 | 2450 | 2560 | 3710 | 7020 | 9280 | 7300 | 4370 | 2470 |
| 30 | 12500 | 4400 | 9810 | 5950 | --- | 2440 | 4570 | 6260 | 9250 | 7170 | 4080 | 2320 |
| 31 | 7320 | --- | 7110 | 5340 | --- | 2870 | --- | 5500 | --- | 7110 | 4200 | --- |
| TOTAL | 127960 | 233010 | 340730 | 188760 | 102410 | 76960 | 103480 | 237840 | 220030 | 269140 | 168230 | 89740 |
| MEAN | 4128 | 7767 | 10990 | 6089 | 3531 | 2482 | 3449 | 7672 | 7334 | 8682 | 5427 | 2991 |
| MAX | 12500 | 16700 | 50600 | 13500 | 5050 | 4350 | 5250 | 11600 | 12500 | 13300 | 7570 | 5170 |
| MIN | 1330 | 3740 | 3100 | 3630 | 2450 | 1840 | 2350 | 5500 | 4030 | 6750 | 3960 | 2320 |
| CFSM | 5.78 | 10.9 | 15.4 | 8.53 | 4.95 | 3.48 | 4.83 | 10.7 | 10.3 | 12.2 | 7.60 | 4.19 |
| IN. | 6.67 | 12.14 | 17.75 | 9.83 | 5.34 | 4.01 | 5.39 | 12.39 | 11.46 | 14.02 | 8.76 | 4.68 |
| AC-FT | 253800 | 462200 | 675800 | 374400 | 203100 | 152600 | 205200 | 471800 | 436400 | 533800 | 333700 | 178000 |

CAL YR 1975 TOTAL 2008260 MEAN 5502 MAX 50600 MIN 1330 CFSM 7.71 IN 104.63 AC-FT 3983000
WTR YR 1976 TOTAL 2158770 MEAN 5898 MAX 50600 MIN 1330 CFSM 8.26 IN 112.47 AC-FT 4282000

## 12190400 BAKER RIVER ABOVE BLUM CREEK NEAR CONCRETE, WA

LOCATION.--Lat 48°45'15", long 121°32'45", in NE¼ sec.30, T.38 N., R.10 E., Whatcom County, Hydrologic Unit 17110005, just upstream from Blum Creek, about 1 mi (1.6 km) upstream from end of Baker Lake and 17.5 mi (28.2 km) northeast of Concrete.

PERIOD OF RECORD.--May to September 1976.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | TOTAL ACIDITY AS H+ (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY<br>04... | 1530 | -- | 17 | 7.0 | 5.0 | 7 | 1 | .0 | 2.5 | .2 | .7 |
| AUG<br>18... | 1300 | E1400 | 13 | 6.9 | 8.4 | 5 | 0 | .0 | 1.8 | .0 | .2 |

E Estimated.

| DATE | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED FLUORIDE (F) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY<br>04... | .2 | 7 | 6 | 1.1 | 2.1 | .7 | .0 | 2.3 | 12 | .14 |
| AUG<br>18... | .2 | 6 | 5 | 1.2 | .6 | .3 | .1 | 2.0 | 8 | .08 |

| DATE | TOTAL ALUMINUM (AL) (UG/L) | TOTAL ARSENIC (AS) (UG/L) | TOTAL BORON (B) (UG/L) | TOTAL CADMIUM (CD) (UG/L) | TOTAL CHROMIUM (CR) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MANGANESE (MN) (UG/L) | TOTAL ZINC (ZN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY<br>04... | 120 | 1 | 70 | <10 | 0 | 10 | 100 | 60 | 10 | 10 |
| AUG<br>18... | 250 | 1 | 30 | <10 | 10 | <10 | 40 | <100 | 0 | 0 |

## 12190710 SWIFT CREEK NEAR CONCRETE, WA

LOCATION.--Lat 48°14'07", long 121°39'26", in NW¼SE¼ sec.32, T.38 N., R.9 E., Whatcom County, Hydrologic Unit 17110005, at road crossing 200 ft (61 m) downstream from Morovitz Creek and 1.4 mi (2.3 km) north of Concrete.

PERIOD OF RECORD.--Water years 1975 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | TOTAL ACIDITY AS H+ (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY 04... | 1600 | -- | 40 | 7.4 | 5.0 | 20 | 3 | .0 | 6.8 | .8 | .9 |
| JUN 25... | 1210 | -- | 42 | 7.6 | 5.5 | 19 | 3 | .0 | 6.5 | .7 | .8 |
| JUL 21... | 1425 | E2300 | 36 | 7.1 | 6.0 | 15 | 2 | .0 | 5.6 | .3 | 1.0 |
| AUG 18... | 1345 | E1200 | 44 | 7.0 | 8.7 | 20 | 4 | .0 | 7.0 | .6 | .7 |
| SEP 15... | 1045 | E800 | 45 | 6.7 | 7.2 | 22 | 5 | .1 | 7.6 | .8 | 1.1 |

E Estimated.

| DATE | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED FLUORIDE (F) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY 04... | .2 | 21 | 17 | 1.3 | 3.9 | .3 | .0 | 3.4 | 27 | .10 |
| JUN 25... | .1 | 20 | 16 | .8 | 4.5 | 1.6 | .1 | 4.6 | 29 | .05 |
| JUL 21... | .3 | 16 | 13 | 2.0 | 5.0 | 1.1 | .0 | 3.2 | 24 | .06 |
| AUG 18... | .2 | 19 | 16 | 3.0 | 6.3 | .4 | .0 | 3.7 | 28 | .03 |
| SEP 15... | .2 | 21 | 17 | 6.7 | 7.0 | .4 | .0 | 4.4 | 32 | .01 |

| DATE | TOTAL ALUMINUM (AL) (UG/L) | TOTAL ARSENIC (AS) (UG/L) | TOTAL BORON (B) (UG/L) | TOTAL CADMIUM (CD) (UG/L) | TOTAL CHROMIUM (CR) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MANGANESE (MN) (UG/L) | TOTAL ZINC (ZN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY 04... | -- | -- | -- | -- | -- | -- | 280 | -- | 10 | -- |
| JUN 25... | 300 | 0 | 0 | 0 | 10 | 0 | 370 | 4 | 20 | 0 |
| JUL 21... | -- | -- | -- | -- | -- | -- | 5700 | -- | 140 | -- |
| AUG 18... | -- | -- | -- | -- | -- | -- | 2500 | -- | 70 | -- |
| SEP 15... | -- | -- | -- | -- | -- | -- | 1000 | -- | 50 | -- |

## 12190720 PARK CREEK NEAR CONCRETE, WA

LOCATION.--Lat 48°43'58", long 121°39'43", in SE¼SW¼ sec.32, T.38 N., R.9 E., Whatcom County, Hydrologic Unit 17110005, Mt. Baker National Forest, at Baker Lake road crossing, and 14.0 mi (22.5 km) north of Concrete.

PERIOD OF RECORD.--Water years 1975 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | TOTAL ACIDITY AS H+ (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 16... | 1200 | -- | 51 | 7.7 | 6.1 | -- | -- | -- | -- | -- | -- |
| 30... | 1100 | -- | 46 | 7.1 | 5.0 | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 13... | 1045 | -- | 75 | 7.4 | 3.3 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 22... | 1100 | -- | 120 | 7.6 | 2.2 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | |
| 13... | 1045 | -- | 80 | 6.5 | 4.4 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 03... | 1245 | -- | 59 | 6.1 | 4.4 | -- | -- | -- | -- | -- | -- |
| 04... | 1610 | -- | 47 | 7.2 | 5.0 | 21 | 5 | .0 | 6.6 | 1.2 | 1.8 |
| JUN | | | | | | | | | | | |
| 25... | 1235 | -- | 49 | 7.5 | 4.9 | 22 | 6 | .0 | 6.9 | 1.1 | 1.1 |
| JUL | | | | | | | | | | | |
| 21... | 1455 | E310 | 33 | 6.8 | 5.6 | 12 | 3 | .0 | 3.8 | .7 | 1.1 |
| AUG | | | | | | | | | | | |
| 18... | 1415 | E390 | 42 | 7.1 | 7.8 | 20 | 11 | .0 | 5.8 | 1.3 | 1.4 |
| SEP | | | | | | | | | | | |
| 15... | 1110 | E500 | 52 | 6.6 | 6.0 | 21 | 10 | .1 | 5.9 | 1.4 | 1.5 |

E Estimated.

| DATE | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED FLUORIDE (F) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 16... | -- | -- | -- | -- | 8.9 | -- | .3 | -- | -- | -- |
| 30... | -- | -- | -- | -- | 4.0 | -- | .1 | -- | -- | -- |
| NOV | | | | | | | | | | |
| 13... | -- | -- | -- | -- | 11 | -- | .1 | -- | -- | -- |
| DEC | | | | | | | | | | |
| 22... | -- | -- | -- | -- | 17 | -- | .2 | -- | -- | -- |
| APR | | | | | | | | | | |
| 13... | -- | -- | -- | -- | 11 | -- | .1 | -- | -- | -- |
| MAY | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | .7 | 20 | 16 | 2.0 | 9.2 | .5 | .0 | 6.1 | 36 | .11 |
| JUN | | | | | | | | | | |
| 25... | .8 | 19 | 16 | 1.0 | 9.0 | 2.4 | .1 | 6.8 | 38 | .07 |
| JUL | | | | | | | | | | |
| 21... | .5 | 12 | 10 | 3.0 | 8.1 | .7 | .0 | 4.4 | 25 | .05 |
| AUG | | | | | | | | | | |
| 18... | .5 | 11 | 9 | 1.4 | 12 | .6 | .1 | 5.3 | 32 | .08 |
| SEP | | | | | | | | | | |
| 15... | .7 | 13 | 11 | 5.2 | 13 | .6 | .1 | 5.8 | 35 | .01 |

| DATE | TOTAL ALUMINUM (AL) (UG/L) | TOTAL ARSENIC (AS) (UG/L) | TOTAL BORON (B) (UG/L) | TOTAL CADMIUM (CD) (UG/L) | TOTAL CHROMIUM (CR) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MANGANESE (MN) (UG/L) | TOTAL ZINC (ZN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | 200 | -- | 20 | -- |
| JUN | | | | | | | | | | |
| 25... | 450 | 0 | 0 | 1 | 10 | 0 | 390 | 16 | 20 | 10 |
| JUL | | | | | | | | | | |
| 21... | 3200 | 1 | 50 | <10 | 0 | 10 | 2900 | <100 | 60 | 20 |
| AUG | | | | | | | | | | |
| 18... | 2000 | 1 | 130 | <10 | 10 | <10 | 2200 | <100 | 80 | 0 |
| SEP | | | | | | | | | | |
| 15... | 1400 | 0 | 70 | <10 | 0 | <10 | 1100 | <100 | 50 | 10 |

## 12190800 BOULDER CREEK NEAR CONCRETE, WA

LOCATION.--Lat 47°43'00", long 121°41'34", in SW¼SW¼ sec.6, T.37 N., R.9 E., Whatcom County, Hydrologic Unit 17110005, Mt. Baker National Forest, at Baker Lake road crossing, and 12.5 mi (20.1 km) north of Concrete.

PERIOD OF RECORD.--Water years 1975 to current year.

REMARKS.--No discharge records available.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | TOTAL ACIDITY AS H+ (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 16... | 1300 | 170 | 4.9 | 6.1 | 42 | 41 | .4 | 13 | 2.4 | 4.1 |
| 30... | 1300 | 105 | 5.5 | 5.0 | 28 | 28 | .1 | 8.7 | 1.6 | 2.9 |
| NOV | | | | | | | | | | |
| 13... | 1230 | 169 | 5.5 | 4.2 | 47 | 47 | .4 | 14 | 2.9 | 4.9 |
| DEC | | | | | | | | | | |
| 22... | 1200 | 200 | 5.6 | 3.3 | 48 | 47 | .2 | 14 | 3.2 | 5.5 |
| APR | | | | | | | | | | |
| 13... | 1230 | 130 | 6.2 | 5.6 | 41 | 38 | .1 | 11 | 3.3 | 4.2 |
| MAY | | | | | | | | | | |
| 03... | 1110 | 95 | 5.3 | 5.0 | -- | -- | -- | -- | -- | -- |
| 03... | 1445 | 114 | 5.5 | 6.0 | 29 | 27 | .1 | 8.4 | 1.9 | 3.1 |
| JUN | | | | | | | | | | |
| 25... | 1300 | 98 | 5.2 | 4.5 | 27 | 27 | .2 | 8.2 | 1.7 | 2.6 |
| JUL | | | | | | | | | | |
| 21... | 1535 | 110 | 4.4 | 6.1 | 27 | 27 | .3 | 8.3 | 1.4 | 2.1 |
| 28... | 1800 | 104 | 4.1 | 11.3 | -- | -- | .4 | -- | -- | -- |
| AUG | | | | | | | | | | |
| 18... | 1450 | 149 | 4.1 | 9.0 | 36 | 36 | .3 | 11 | 2.0 | 3.0 |
| SEP | | | | | | | | | | |
| 15... | 1135 | 116 | 4.0 | 8.4 | 34 | 34 | .4 | 10 | 2.2 | 4.3 |

| DATE | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | ALKA-LINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED FLUO-RIDE (F) (MG/L) | DIS-SOLVED SILICA (SIO2) (MG/L) | DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 16... | 1.2 | 2 | 2 | 40 | 57 | 1.8 | .3 | 20 | 101 | .03 |
| 30... | 1.0 | 1 | 1 | 5.1 | 30 | .7 | .2 | 15 | 61 | .09 |
| NOV | | | | | | | | | | |
| 13... | 1.5 | 0 | 0 | .0 | 60 | 1.5 | .3 | 25 | 111 | .11 |
| DEC | | | | | | | | | | |
| 22... | 2.0 | 1 | 1 | 4.0 | 55 | 1.8 | .3 | 26 | 109 | .08 |
| APR | | | | | | | | | | |
| 13... | 1.4 | 4 | 3 | 4.0 | 45 | 1.0 | .2 | -- | -- | .10 |
| MAY | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | .07 |
| 03... | 1.1 | 2 | 2 | 10 | 33 | .8 | .1 | 16 | 65 | .08 |
| JUN | | | | | | | | | | |
| 25... | 1.1 | 1 | 1 | 10 | 38 | 1.7 | .2 | 18 | 72 | .05 |
| JUL | | | | | | | | | | |
| 21... | .8 | 0 | 0 | .0 | 30 | .8 | .2 | 13 | 65 | .05 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 18... | 1.0 | 0 | 0 | .0 | 51 | .6 | .2 | 17 | 86 | .05 |
| SEP | | | | | | | | | | |
| 15... | 1.2 | 0 | 0 | .0 | 56 | .8 | .2 | 19 | 94 | .01 |

| DATE | TOTAL ALUM-INUM (AL) (UG/L) | TOTAL ARSENIC (AS) (UG/L) | TOTAL BORON (B) (UG/L) | TOTAL CAD-MIUM (CD) (UG/L) | TOTAL CHRO-MIUM (CR) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | TOTAL ZINC (ZN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 16... | 440 | 2 | 80 | -- | -- | -- | 4000 | -- | 80 | -- |
| 30... | 2800 | 2 | 50 | -- | -- | -- | 3500 | -- | 120 | -- |
| NOV | | | | | | | | | | |
| 13... | 1400 | 2 | 90 | -- | -- | -- | 1100 | -- | 70 | -- |
| DEC | | | | | | | | | | |
| 22... | 1200 | 1 | 100 | -- | -- | -- | 850 | -- | 60 | -- |
| APR | | | | | | | | | | |
| 13... | 970 | 1 | 50 | -- | -- | -- | 980 | -- | 50 | -- |
| MAY | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | 970 | 1 | 60 | <10 | 0 | 10 | 1500 | 60 | 40 | 0 |
| JUN | | | | | | | | | | |
| 25... | 110 | 0 | 10 | 1 | <10 | 0 | 880 | 5 | 30 | 0 |
| JUL | | | | | | | | | | |
| 21... | 2400 | 1 | 60 | <10 | 0 | 10 | 2500 | <100 | 40 | 10 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 18... | 5100 | 1 | 70 | <10 | 10 | 10 | 3000 | <100 | 70 | 10 |
| SEP | | | | | | | | | | |
| 15... | 2400 | 1 | 70 | <10 | 0 | <10 | 2200 | <100 | 60 | 0 |

## 12191000 SANDY CREEK NEAR CONCRETE, WA

LOCATION.--Lat 48°41'05", long 121°42'23", in NE¼NW¼ sec.24, T.37 N., R.8 E. (unsurveyed), Whatcom County, Hydrologic Unit 17110005, Mt. Baker National Forest, at Baker Lake road crossing, and 10.5 mi (16.9 km) north of Concrete.

DRAINAGE AREA.--10.8 $mi^2$ (28.0 $km^2$).

PERIOD OF RECORD.--Water years 1975 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | TOTAL ACIDITY AS H+ (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY 03... | 1420 | -- | 39 | 7.1 | 6.0 | 16 | 0 | .1 | 5.4 | .7 | 1.2 |
| JUN 25... | 1135 | -- | 42 | 7.5 | 4.8 | 20 | 7 | .0 | 6.3 | 1.1 | .9 |
| JUL 21... | 1330 | E340 | 33 | 7.4 | 6.7 | 14 | 1 | .0 | 4.3 | .7 | 1.2 |
| AUG 18... | 1210 | E240 | 45 | 7.5 | 8.4 | 17 | 4 | .0 | 5.2 | 1.0 | 1.5 |
| SEP 15... | 1020 | E260 | 57 | 6.4 | 8.4 | 20 | 10 | .1 | 5.9 | 1.2 | 2.0 |

E Estimated.

| DATE | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED FLUORIDE (F) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY 03... | .5 | 21 | 17 | 2.7 | 3.6 | .3 | .0 | 7.9 | 30 | .10 |
| JUN 25... | .6 | 16 | 13 | .8 | 9.4 | .8 | .1 | 9.6 | 37 | .08 |
| JUL 21... | .4 | 16 | 13 | 1.0 | 4.6 | .9 | .1 | 8.2 | 28 | .04 |
| AUG 18... | .5 | 16 | 13 | .8 | 6.2 | .5 | .1 | 10 | 33 | .03 |
| SEP 15... | .7 | 12 | 10 | 7.6 | 15 | 1.2 | .1 | 11 | 43 | .01 |

| DATE | TOTAL ALUMINUM (AL) (UG/L) | TOTAL ARSENIC (AS) (UG/L) | TOTAL BORON (B) (UG/L) | TOTAL CADMIUM (CD) (UG/L) | TOTAL CHROMIUM (CR) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MANGANESE (MN) (UG/L) | TOTAL ZINC (ZN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY 03... | -- | -- | -- | -- | -- | -- | 320 | -- | 10 | -- |
| JUN 25... | 950 | 0 | 10 | 1 | <10 | 0 | 70 | 4 | 10 | 0 |
| JUL 21... | -- | -- | -- | -- | -- | -- | 520 | -- | 10 | -- |
| AUG 18... | -- | -- | -- | -- | -- | -- | 620 | -- | 20 | -- |
| SEP 15... | -- | -- | -- | -- | -- | -- | 1200 | -- | 10 | -- |

## 12191600 BAKER LAKE AT UPPER BAKER DAM, WA

LOCATION.--Lat 48°38'58", long 121°41'22", in NW¼SW¼ sec.31, T.37 N., R.9 E., Whatcom County, Hydrologic Unit 17110005, at upper Baker Dam on Baker River near center of dam, 0.3 mi (0.5 km) upstream from Sulphur Creek, 8.0 mi (12.9 km) north of Concrete and at mile 9.3 (15.0 km).

DRAINAGE AREA.--215 mi$^2$ (557 km$^2$).

PERIOD OF RECORD.--February to September 1976.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | DISSOLVED OXYGEN (MG/L) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 11... | 1500 | 22 | 46 | 6.6 | 1.5 | -- | -- | -- | -- | -- | -- |
| 11... | 1510 | 85 | 44 | 6.6 | 1.8 | -- | -- | -- | -- | -- | -- |
| 11... | 1520 | 147 | 41 | 6.8 | 1.8 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 04... | 1115 | 12 | 25 | 7.4 | 8.0 | -- | -- | 15 | 2 | 4.5 | 1.0 |
| 04... | 1125 | 50 | 24 | 7.1 | 6.0 | -- | -- | -- | -- | -- | -- |
| 04... | 1135 | 102 | 29 | 6.9 | 4.2 | -- | -- | -- | -- | -- | -- |
| 04... | 1400 | 9.0 | 41 | 7.2 | 9.8 | -- | -- | 19 | 2 | 6.3 | .7 |
| 04... | 1410 | 32 | 37 | 7.2 | 8.0 | -- | -- | -- | -- | -- | -- |
| 04... | 1420 | 55 | 33 | 7.1 | 7.1 | -- | -- | -- | -- | -- | -- |
| 05... | 1030 | 22 | 48 | 7.3 | 9.0 | -- | -- | 24 | 6 | 8.0 | .9 |
| 05... | 1040 | 85 | 45 | 7.2 | 7.0 | -- | -- | -- | -- | -- | -- |
| 05... | 1050 | 145 | 45 | 7.0 | 6.0 | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 28... | 1000 | 5.0 | 26 | 7.3 | 17.0 | 10 | 10.2 | -- | -- | -- | -- |
| 28... | 1015 | 45 | 21 | 6.4 | 10.1 | -- | 10.8 | -- | -- | -- | -- |
| 28... | 1030 | 130 | 29 | 6.0 | 5.2 | 10 | 9.5 | -- | -- | -- | -- |
| 28... | 1400 | 5.0 | 30 | 7.0 | 17.0 | 5 | 10.7 | -- | -- | -- | -- |
| 28... | 1415 | 32 | 28 | 6.4 | 12.0 | -- | 11.0 | -- | -- | -- | -- |
| 28... | 1430 | 75 | 25 | 6.3 | 10.0 | 5 | 11.2 | -- | -- | -- | -- |
| 28... | 1600 | 5.0 | 30 | 7.1 | 14.0 | 5 | 11.2 | -- | -- | -- | -- |
| 28... | 1615 | 45 | 30 | 6.5 | 11.0 | -- | 11.2 | -- | -- | -- | -- |
| 28... | 1630 | 160 | 24 | 6.2 | 9.0 | 5 | 11.0 | -- | -- | -- | -- |

| DATE | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 11... | -- | -- | 18 | 15 | -- | -- | 5.7 | -- | .08 | .00 |
| 11... | -- | -- | 19 | 16 | -- | -- | 5.8 | -- | .08 | .00 |
| 11... | -- | -- | 19 | 16 | -- | -- | 5.9 | -- | .08 | .00 |
| MAY | | | | | | | | | | |
| 04... | .8 | .3 | 16 | 13 | 6.0 | .6 | 3.4 | 24 | .11 | .00 |
| 04... | -- | -- | 14 | 11 | -- | -- | 3.2 | -- | -- | -- |
| 04... | -- | -- | 18 | 15 | -- | -- | 3.4 | -- | .09 | .00 |
| 04... | 1.3 | .4 | 20 | 16 | 7.4 | .6 | 6.2 | 33 | .10 | .00 |
| 04... | -- | -- | 16 | 13 | -- | -- | 4.8 | -- | -- | -- |
| 04... | -- | -- | 18 | 15 | -- | -- | 4.1 | -- | .10 | .00 |
| 05... | 1.6 | .5 | 21 | 17 | 7.1 | .5 | 6.3 | 35 | .08 | .00 |
| 05... | -- | -- | 19 | 16 | -- | -- | 6.4 | -- | -- | -- |
| 05... | -- | -- | 19 | 16 | -- | -- | 6.8 | -- | .09 | .00 |
| JUL | | | | | | | | | | |
| 28... | -- | -- | -- | 10 | 5.8 | -- | 4.0 | -- | .01 | .03 |
| 28... | -- | -- | -- | -- | 4.3 | -- | 3.1 | -- | -- | -- |
| 28... | -- | -- | -- | -- | 3.3 | -- | 3.9 | -- | .11 | .00 |
| 28... | -- | -- | -- | 10 | 6.5 | -- | 4.5 | -- | .00 | .00 |
| 28... | -- | -- | -- | -- | 6.3 | -- | 4.2 | -- | -- | -- |
| 28... | -- | -- | -- | -- | 6.6 | -- | 3.4 | -- | .02 | .00 |
| 28... | -- | -- | -- | 10 | 6.6 | -- | 5.3 | -- | .01 | .00 |
| 28... | -- | -- | -- | -- | 6.3 | -- | 5.3 | -- | -- | -- |
| 28... | -- | -- | -- | -- | 5.4 | -- | 3.5 | -- | .04 | .00 |

## 12191600 BAKER LAKE AT UPPER BAKER DAM, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | TOTAL BORON (B) (UG/L) | DIS-SOLVED BORON (B) (UG/L) | TOTAL IRON (FE) (UG/L) | DIS-SOLVED IRON (FE) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | DIS-SOLVED MAN-GANESE (MN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 11... | .04 | .10 | .01 | .00 | -- | 10 | -- | 60 | -- | 30 |
| 11... | .04 | .09 | .01 | .00 | -- | 10 | -- | 0 | -- | 10 |
| 11... | .04 | .09 | .01 | .00 | -- | 10 | -- | 60 | -- | 30 |
| MAY | | | | | | | | | | |
| 04... | .04 | .13 | .01 | .00 | 70 | -- | 410 | -- | 40 | -- |
| 04... | -- | -- | -- | -- | 80 | -- | 630 | -- | 50 | -- |
| 04... | .05 | .13 | .01 | .00 | 70 | -- | 640 | -- | 100 | -- |
| 04... | .05 | .16 | .02 | .00 | 90 | -- | 840 | -- | 80 | -- |
| 04... | -- | -- | -- | -- | 90 | -- | 840 | -- | 60 | -- |
| 04... | .06 | .14 | .02 | .00 | 70 | -- | 800 | -- | 70 | -- |
| 05... | .05 | .14 | .01 | .00 | 80 | -- | 680 | -- | 100 | -- |
| 05... | -- | -- | -- | -- | 90 | -- | 750 | -- | 110 | -- |
| 05... | .06 | .11 | .01 | .00 | 40 | -- | 920 | -- | 130 | -- |
| JUL | | | | | | | | | | |
| 28... | .03 | .09 | .01 | .00 | 40 | -- | 120 | -- | 10 | -- |
| 28... | -- | -- | -- | -- | 50 | -- | 230 | -- | 10 | -- |
| 28... | .03 | .09 | .01 | .00 | 80 | -- | 300 | -- | 100 | -- |
| 28... | .04 | .14 | .01 | .00 | 40 | -- | 220 | -- | 10 | -- |
| 28... | -- | -- | -- | -- | 40 | -- | 430 | -- | 20 | -- |
| 28... | .07 | .11 | .03 | .00 | 40 | -- | 520 | -- | 20 | -- |
| 28... | .05 | .16 | .02 | .00 | 40 | -- | 240 | -- | 10 | -- |
| 28... | -- | -- | -- | -- | 210 | -- | 300 | -- | 20 | -- |
| 28... | .07 | .08 | .01 | .00 | 40 | -- | 400 | -- | 20 | -- |

## 12191700 BAKER RIVER AT UPPER BAKER DAM, NEAR CONCRETE, WA

LOCATION.--Lat 48°38'54", long 121°41'47", in NE¼SE¼ sec.36, T.37 N., R.8 E., Whatcom County, Hydrologic Unit 17110005, at upper Baker Dam, 8.0 mi (12.9 km) north of Concrete.

DRAINAGE AREA.--215 mi² (557 km²).

PERIOD OF RECORD.--Water years 1975 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | HARDNESS (CA,MG) (MG/L) | NON-CARBONATE HARDNESS (MG/L) | TOTAL ACIDITY AS H+ (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 16... | 1005 | 57 | 7.2 | 11.7 | 16 | 9 | .0 | 5.6 | .5 | 1.5 |
| 30... | 1500 | 83 | 7.4 | 8.9 | 28 | 8 | .1 | 9.2 | 1.2 | 1.5 |
| NOV | | | | | | | | | | |
| 13... | 1310 | 60 | 7.2 | 6.1 | 19 | 3 | .1 | 6.2 | .8 | 1.8 |
| DEC | | | | | | | | | | |
| 22... | 1350 | 80 | 6.9 | 3.9 | 22 | 3 | .1 | 7.0 | 1.2 | 2.0 |
| APR | | | | | | | | | | |
| 13... | 1350 | 74 | 6.4 | 5.0 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 03... | 1005 | 59 | 6.4 | 6.1 | -- | -- | -- | -- | -- | -- |
| 03... | 1320 | 52 | 6.9 | 7.0 | 24 | 6 | .1 | 6.8 | 1.6 | 1.5 |
| JUN | | | | | | | | | | |
| 25... | 1100 | 35 | 7.3 | 8.8 | 15 | 3 | .0 | 4.8 | .7 | .5 |
| JUL | | | | | | | | | | |
| 21... | 1145 | 33 | 6.6 | 9.2 | 16 | 3 | .1 | 5.5 | .6 | 1.0 |
| AUG | | | | | | | | | | |
| 18... | 1110 | 42 | 6.4 | 11.4 | 17 | 3 | .1 | 5.5 | .9 | 1.0 |
| SEP | | | | | | | | | | |
| 15... | 0925 | 144 | 6.0 | 10.4 | 15 | 2 | .1 | 4.6 | .8 | 1.0 |

| DATE | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED FLUORIDE (F) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 16... | .4 | 9 | 7 | .9 | 12 | .6 | .1 | 5.3 | 30 | .02 |
| 30... | .6 | 24 | 20 | 1.5 | 10 | .5 | .1 | 7.9 | 43 | .12 |
| NOV | | | | | | | | | | |
| 13... | .4 | 19 | 16 | 1.9 | 9.1 | .9 | .1 | 6.8 | 36 | .07 |
| DEC | | | | | | | | | | |
| 22... | .6 | 24 | 20 | 4.8 | 7.0 | .5 | .1 | 7.3 | 38 | .14 |
| APR | | | | | | | | | | |
| 13... | -- | -- | -- | -- | 11 | -- | .1 | -- | -- | -- |
| MAY | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | .5 | 21 | 17 | 4.2 | 8.2 | .9 | .0 | 7.1 | 37 | .09 |
| JUN | | | | | | | | | | |
| 25... | .5 | 15 | 12 | 1.2 | 3.7 | 1.7 | .1 | 5.5 | 25 | .07 |
| JUL | | | | | | | | | | |
| 21... | .4 | 16 | 13 | 6.4 | 6.6 | .8 | .1 | 5.1 | 28 | .09 |
| AUG | | | | | | | | | | |
| 18... | .4 | 18 | 15 | 11 | 4.7 | .6 | .1 | 5.3 | 27 | .60 |
| SEP | | | | | | | | | | |
| 15... | .4 | 15 | 12 | 24 | 6.9 | .6 | .1 | 5.0 | 27 | .05 |

| DATE | TOTAL ALUMINUM (AL) (UG/L) | TOTAL ARSENIC (AS) (UG/L) | TOTAL BORON (B) (UG/L) | TOTAL CADMIUM (CD) (UG/L) | TOTAL CHROMIUM (CR) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MANGANESE (MN) (UG/L) | TOTAL ZINC (ZN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 16... | 500 | 0 | 40 | -- | -- | -- | 480 | -- | 30 | -- |
| 30... | 700 | 0 | 40 | -- | -- | -- | 800 | -- | 70 | -- |
| NOV | | | | | | | | | | |
| 13... | 600 | 1 | 180 | -- | -- | -- | 750 | -- | 40 | -- |
| DEC | | | | | | | | | | |
| 22... | 480 | 1 | 90 | -- | -- | -- | 550 | -- | 30 | -- |
| APR | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | 270 | 2 | 90 | 30 | 0 | 10 | 790 | 200 | 120 | 40 |
| JUN | | | | | | | | | | |
| 25... | 120 | 0 | 20 | 2 | <10 | 0 | 150 | 8 | 10 | 0 |
| JUL | | | | | | | | | | |
| 21... | 500 | 1 | 30 | <10 | 10 | <10 | 570 | <100 | 20 | 0 |
| AUG | | | | | | | | | | |
| 18... | 600 | 0 | 30 | <10 | 10 | 10 | 400 | <100 | 20 | 0 |
| SEP | | | | | | | | | | |
| 15... | 460 | 0 | 40 | <10 | 0 | <10 | 680 | <100 | 20 | 0 |

## 12191820 SULPHUR CREEK AT GUARD STATION NEAR CONCRETE, WA

LOCATION.--Lat 48°39'33", long 121°42'44", in SW¼SW¼ sec.25, T.37 N., R.8 E. (unsurveyed), Whatcom County, Hydrologic Unit 17110005, Mt. Baker National Forest, at Baker Lake road crossing, and 8.5 mi (13.7 km) north of Concrete.

PERIOD OF RECORD.--Water years 1975 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | TOTAL ACIDITY AS H+ (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY 03... | 1350 | -- | 71 | 7.3 | 6.0 | 29 | 6 | .0 | 8.3 | 2.1 | 3.8 |
| JUN 25... | 1030 | -- | 83 | 7.8 | 5.5 | 32 | 10 | .0 | 9.0 | 2.2 | 3.3 |
| JUL 21... | 1300 | E140 | 65 | 6.8 | 6.6 | 24 | 6 | .0 | 6.7 | 1.7 | 3.1 |
| AUG 18... | 1140 | E130 | 114 | 7.1 | 7.8 | 35 | 10 | .0 | 9.5 | 2.7 | 5.1 |
| SEP 15... | 0950 | E150 | 114 | 6.8 | 8.3 | 46 | 18 | .2 | 12 | 4.0 | 8.6 |

E Estimated.

| DATE | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED FLUORIDE (F) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY 03... | 1.1 | 29 | 24 | 2.3 | 12 | .8 | .1 | 12 | 54 | .02 |
| JUN 25... | 1.2 | 26 | 21 | .7 | 15 | 2.9 | .1 | 16 | 63 | .03 |
| JUL 21... | .9 | 22 | 18 | 5.6 | 12 | 1.5 | .1 | 13 | 50 | .04 |
| AUG 18... | 1.3 | 30 | 25 | 3.8 | 22 | 1.9 | .1 | 18 | 75 | .06 |
| SEP 15... | 2.2 | 35 | 29 | 8.9 | 30 | 2.5 | .2 | 25 | 102 | .06 |

| DATE | TOTAL ALUMINUM (AL) (UG/L) | TOTAL ARSENIC (AS) (UG/L) | TOTAL BORON (B) (UG/L) | TOTAL CADMIUM (CD) (UG/L) | TOTAL CHROMIUM (CR) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MANGANESE (MN) (UG/L) | TOTAL ZINC (ZN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY 03... | -- | -- | -- | -- | -- | -- | 690 | -- | 20 | -- |
| JUN 25... | 100 | 0 | 10 | 1 | 10 | 0 | 110 | 4 | 10 | 10 |
| JUL 21... | -- | -- | -- | -- | -- | -- | 230 | -- | 10 | -- |
| AUG 18... | -- | -- | -- | -- | -- | -- | 110 | -- | 0 | -- |
| SEP 15... | -- | -- | -- | -- | -- | -- | 130 | -- | 10 | -- |

## 12191900 ROCKY CREEK NEAR CONCRETE, WA

LOCATION.--Lat 48°38'53", long 121°43'50", in NE¼SW¼ sec.35, T.37 N., R.8 E. (unsurveyed), Whatcom County, Hydrologic Unit 17110005, Mt. Baker National Forest, at Baker Lake road crossing, and 8.0 mi (12.9 km) north of Concrete.

PERIOD OF RECORD.--Water years 1975 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | TOTAL ACIDITY AS H+ (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY 05... | 1200 | -- | 38 | 7.5 | 6.0 | 22 | 4 | .0 | 6.7 | 1.2 |
| JUN 25... | 0950 | -- | 35 | 7.4 | 4.0 | 16 | 0 | .0 | 5.4 | .5 |
| JUL 21... | 1030 | E270 | 29 | 7.2 | 7.0 | 14 | 1 | .0 | 5.3 | .3 |
| AUG 18... | 1015 | E240 | 39 | 7.0 | 7.8 | 17 | 2 | .0 | 5.9 | .5 |
| SEP 15... | 0830 | E140 | 43 | 6.2 | 10.0 | 21 | 3 | .2 | 7.1 | .9 |

E Estimated.

| DATE | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED FLUORIDE (F) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY 05... | .7 | .2 | 21 | 17 | 1.1 | 3.5 | .2 | .1 | 3.6 | 27 |
| JUN 25... | 1.0 | .4 | 20 | 16 | 1.3 | 2.5 | 2.1 | .1 | 4.7 | 27 |
| JUL 21... | .6 | .3 | 17 | 14 | 1.7 | 1.8 | .7 | .0 | 3.8 | 21 |
| AUG 18... | .5 | .2 | 18 | 15 | 2.9 | 4.6 | .3 | .0 | 4.3 | 25 |
| SEP 15... | 1.5 | .3 | 23 | 19 | 23 | 6.7 | .5 | .1 | 5.8 | 34 |

| DATE | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL ALUMINUM (AL) (UG/L) | TOTAL CADMIUM (CD) (UG/L) | TOTAL CHROMIUM (CR) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MANGANESE (MN) (UG/L) | TOTAL ZINC (ZN) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| MAY 05... | .05 | -- | -- | -- | -- | 140 | -- | 20 | -- |
| JUN 25... | .03 | 50 | 1 | <10 | 0 | 80 | 11 | 10 | 20 |
| JUL 21... | .08 | -- | -- | -- | -- | 160 | -- | 10 | -- |
| AUG 18... | .15 | -- | -- | -- | -- | 340 | -- | 20 | -- |
| SEP 15... | .01 | -- | -- | -- | -- | 220 | -- | 0 | -- |

## RESERVOIRS IN SKAGIT RIVER BASIN, WA

12175000 ROSS RESERVOIR.--(See sta no. 12175000).

12176500 DIABLO RESERVOIR.--Lat 48°42'56", long 121°07'52", in SE¼ sec.5, T.37 N., R.13 E. (unsurveyed), Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, in Diablo Dam on Skagit River, 1.2 mi (1.9 km) downstream from Thunder Creek, 6.0 mi (9.7 km) northeast of Newhalem, and at mile 101.0 (162.5 km). DRAINAGE AREA, 1,125 mi$^2$ (2,914 km$^2$) includes 400 mi$^2$ (1,036 km$^2$) in Canada. PERIOD OF RECORD, October 1929 to current year. October 1929 to September 1938, monthly change in reservoir contents published with records for Skagit River at Newhalem. GAGE, water-stage recorder. Datum of gage is at mean sea level (city of Seattle datum). Prior to Oct. 1, 1964, at datum 0.28 ft (0.085 m) higher.

Reservoir is formed by concrete arch dam, completed in 1930, storage began in October 1929. Usable storage 8,820 acre-ft (10.9 hm$^3$) between elevations 1,195 ft (364.2 m) normal lower limit of operation, and 1,205 ft (367.3 m) top of taintor gates. Dead storage, below elevation 1,040 ft (317.0 m), 12,900 acre-ft (15.9 hm$^3$). Crest of spillway is at elevation 1,187 ft (361.8 m). Water used by city of Seattle for power development at Diablo and Gorge Powerplants. Capacity table furnished by city of Seattle. Figures given herein represent total contents.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 90,600 acre-ft (112 hm$^3$) July 14, 1933, elevation, 1,206.5 ft (367.74 m); minimum not determined.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 89,744 acre-ft (111 hm$^3$) Oct. 17, elevation, 1,205.85 ft (367.543 m); minimum, 22.589 acre-ft (27.9 hm$^3$) Apr. 17, elevation, 1,181.34 ft (360.072 m).

12177700 GORGE RESERVOIR.--Lat 48°41'53", long 121°12'25", in NW¼ sec.14, T.37 N., R.12 E., Whatcom County, Hydrologic Unit,17110005, Ross Lake National Recreation Area, in Gorge Dam on Skagit River, 2.4 mi (3.9 km) upstream from city of Seattle Gorge powerplant at Newhalem, and at mile 96.6 (155.4 km). DRAINAGE AREA, 1,159 mi$^2$ (3,002 km$^2$), includes 400 mi$^2$ (1,036 km$^2$) in Canada. PERIOD OF RECORD, June 1960 to current year. GAGE, water-stage recorder; prior to Apr. 1, 1962, reference point on Gorge Dam or dial in powerhouse. Datum of gage is at mean sea level, Gorge High Dam datum, and 1,792 ft (0.546 m) below mean sea level (Corps of Engineers bench mark).

Reservoir is formed by concrete arch and gravity dam, completed Dec. 27, 1960; storage began June 27, 1960. Usable storage, 2,115 acre-ft (2.61 hm$^3$) between elevations 865 ft (263.7 m), normal lower limit of operation and 875 ft (266.7 m), top of gates. Lowest outlet at elevation 760 ft (231.6 m). No dead storage. Crest of spillway is at elevation 825 ft (251.5 m). Water used by city of Seattle for power development at Gorge powerplant. Capacity table furnished by city of Seattle. Figures herein represent total contents.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents recorded, 9,758 acre-ft (12.0 hm$^3$) June 13, 1974, elevation, 880.00 ft (268.224 m); minimum since normal low operating level was reached in December 1960, 1,551 acre-ft (1.91 hm$^3$) July 20, 1965, elevation, 819.40 ft (249.753 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 9,742 acre-ft (12.0 hm$^3$) May 13, elevation, 879.94 ft (268.206 m); minimum, 6,325 acre-ft (7.80 hm$^3$) Oct. 30, elevation, 864.74 ft (263.573 m).

12191600 BAKER LAKE.--Lat 48°38'58", long 121°41'22", in SW¼ sec.31, T.37 N., R.9 E., Whatcom County, Hydrologic Unit 17110005, at upper Baker Dam on Baker River near center of dam, 0.3 mi (0.5 km) upstream from Sulphur Creek, 8.0 mi (12.9 km) north of Concrete, and at mile 9.3 (15.0 km). DRAINAGE AREA, 215 mi$^2$ (557 km$^2$). PERIOD OF RECORD, July 1959 to current year. GAGE, water-stage recorder. Datum of gage is at mean sea level.

Reservoir is formed by concrete gravity dam, completed in June 1959; storage began July 9, 1959. Usable storage, 220,630 acre-ft (272 hm$^3$) between elevations 724 ft (220.7 m) normal full pool, and 655 ft (199.6 m), minimum operating pool. Dead storage below elevation 655 ft (199.6 m), 64,840 acre-ft (79.9 hm$^3$). Crest of spillway is at elevation 694 ft (211.5 m). Water used by Puget Sound Power and Light Co. for power development. Capacity table furnished by Puget Sound Power and Light Co. Figures given herein represent total contents.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 287,930 acre-ft (355 hm$^3$) July 12, 1972, elevation, 724.49 ft (220.825 m); minimum since normal high operating level was reached in August 1960, 104,622 acre-ft (129 hm$^3$) Feb. 20, 1975, elevation, 675.63 ft (205.932 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 285,672 acre-ft (352 hm$^3$) Sept. 5, elevation, 724.04 ft (220.687 m); minimum, 103,077 acre-ft (127 hm$^3$) Mar. 31, elevation, 675.00 ft (205.740 m).

12193000 LAKE SHANNON.--Lat 48°32'53", long 121°44'22", in SW¼ sec.2, T.35 N., R.8 E., Skagit County, Hydrologic Unit 17110005, at Baker Dam on Baker River near left bank, 0.7 mi (1.1 km) north of Concrete and at mile 1.2 (1.9 km). DRAINAGE AREA, 297 mi$^2$ (769 km$^2$). PERIOD OF RECORD, November 1925 to current year. Gage, water-stage recorder; prior to Nov. 11, 1959, water-stage indicator in powerplant. Datum of gage is at mean sea level. Prior to March 1959, at datum 1.72 ft (0.524 m) lower.

Reservoir is formed by concrete arch and gravity dam, completed in June 1927; storage began in November 1925. Usable storage, 142,400 acre-ft (176 hm$^3$) between elevations 355 ft (108.20 m), minimum operating pool, and 438.6 ft (133.69 m), normal full pool. Dead storage unknown. Spillway crest is at elevation 424.9 ft (129.51 m). Water used by Puget Sound Power and Light Co. for power development. Prior to Nov. 11, 1959, gage-height record furnished by Puget Sound Power and Light Co. from powerplant log. Figures given herein represent contents above elevation 341.7 ft (104.15 m), center line of outlet tunnel.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 161,470 acre-ft (199 hm$^3$) Sept. 17, 1968, elevation, 439.50 ft (133.960 m); minimum since October 1953, 28,260 acre-ft (34.8 hm$^3$) Mar. 6, 1969, elevation, 363.7 ft (110.86 m), not determined prior to October 1953 because of incomplete records.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 159,623 acre-ft (197 hm$^3$) Nov. 15, Dec. 4, elevation, 438.67 ft (133.707 m); minimum observed, 68,651 acre-ft (84.6 hm$^3$) Apr. 21, elevation, 390.78 ft (119.110 m).

Reservoirs in Skagit River basin--Continued

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|---|---|---|
|  | 12176500 Diablo Reservoir |  |  | 12177700 Gorge Reservoir |  |  |
| Sept. 30 | 1,200.92 | 85,323 | - | 873.40 | 8,107 | - |
| Oct. 31 | 1,199.10 | 83,735 | -1,588 | 869.61 | 7,266 | -841 |
| Nov. 30 | 1,203.49 | 87,599 | +3,864 | 873.80 | 8,200 | +934 |
| Dec. 31 | 1,201.96 | 86,238 | -1,361 | 869.01 | 7,140 | -1,060 |
| CAL YR 1975 | - | - | +1,398 | - | - | -1,221 |
| Jan. 31 | 1,203.72 | 87,806 | +1,568 | 874.19 | 8,292 | +1,152 |
| Feb. 29 | 1,203.21 | 87,348 | -458 | 873.75 | 8,189 | -103 |
| Mar. 31 | 1,205.57 | 89,487 | +2,139 | 873.43 | 8,114 | -75 |
| Apr. 30 | 1,202.67 | 86,867 | -2,620 | 874.82 | 8,442 | +328 |
| May 31 | 1,201.17 | 85,543 | -1,324 | 877.97 | 9,225 | +783 |
| June 30 | 1,202.94 | 87,107 | +1,564 | 878.92 | 9,472 | +247 |
| July 31 | 1,203.73 | 87,815 | +708 | 876.05 | 8,741 | -731 |
| Aug. 31 | 1,203.29 | 87,419 | -396 | 873.14 | 8,047 | -694 |
| Sept. 30 | 1,200.19 | 84,682 | -2,737 | 873.05 | 8,026 | -21 |
| WTR YR 1976 | - | - | -641 | - | - | -81 |
|  | 12191600 Baker Lake |  |  | 12193000 Lake Shannon |  |  |
| Sept. 30 | 706.13 | 204,079 | - | 437.80 | 157,698 | - |
| Oct. 31 | 706.39 | 205,150 | +1,071 | 436.52 | 154,894 | -2,804 |
| Nov. 30 | 704.68 | 198,203 | -6,947 | 437.38 | 156,775 | +1,881 |
| Dec. 31 | 709.14 | 216,670 | +18,467 | 437.62 | 157,303 | +528 |
| CAL YR 1975 | - | - | -19,972 | - | - | +44,484 |
| Jan. 31 | 702.15 | 188,230 | -28,440 | 434.03 | 149,514 | -7,789 |
| Feb. 29 | 675.99 | 105,505 | -82,725 | 422.79 | 126,568 | -22,946 |
| Mar. 31 | 675.21 | 103,592 | -1,913 | 392.98 | 72,274 | -54,294 |
| Apr. 30 | 681.18 | 119,078 | +15,486 | 395.40 | 76,333 | +4,059 |
| May 31 | 700.48 | 181,848 | +62,770 | 403.22 | 90,009 | +13,676 |
| June 30 | 714.98 | 242,426 | +60,578 | 415.17 | 112,128 | +22,119 |
| July 31 | 723.55 | 283,239 | +40,813 | 437.41 | 156,841 | +44,713 |
| Aug. 31 | 723.63 | 283,636 | +397 | 437.77 | 157,632 | +791 |
| Sept. 30 | 723.08 | 280,907 | -2,729 | 435.88 | 153,500 | -4,132 |
| WTR YR 1976 | - | - | +76,828 | - | - | -4,198 |

## 12193500 BAKER RIVER AT CONCRETE, WA

LOCATION.--Lat 48°32'24", long 121°44'31", in NW¼NW¼ sec.11, T.35 N., R.8 E., Skagit County, Hydrologic Unit 17110005, on left bank just upstream from fish barrier, 0.2 mi (0.3 km) northeast of Concrete, 0.3 mi (0.5 km) downstream from Baker River powerplant, and at mile 0.7 (1.1 km).

DRAINAGE AREA.--297 mi$^2$ (769 km$^2$).

PERIOD OF RECORD.--September 1910 to March 1915, September 1943 to current year, chemical analyses November 1961 to August 1965.

REVISED RECORDS.--WSP 1286: 1911-13(M), 1945-46, drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Mar. 5, 1915, nonrecording gage at site 0.2 mi (0.3 km) downstream at different datum. Sept. 1, 1943, to Jan. 22, 1958, water-stage recorder at site 700 ft (213 m) upstream at datum 172.6 ft (52.61 m) above mean sea level (from river-profile survey). Jan. 23, to June 11, 1958, powerplant record. Supplementary water-stage recorder on left bank about 40 ft (12 m) downstream from fish barrier and on tailrace of powerhouse at same datum.

REMARKS.--Records excellent except those below 300 ft$^3$/s (8.50 m$^3$/s) which are fair. No diversions which are not returned to river above gage. Flow completely regulated by Baker River powerplants and Baker and Shannon Lakes (see stations 12191600 and 12193000).

AVERAGE DISCHARGE.--37 years (water years 1911-14, 1944-76), 2,700 ft$^3$/s (76.46 m$^3$/s) 1,956,000 acre-ft/yr (2,410 hm$^3$/yr), adjusted for storage in Lake Shannon since November 1925, and Baker Lake since July 1959.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,600 ft$^3$/s (1,040 m$^3$/s) Nov. 19, 1962, elevation, 186.6 ft (56.88 m), computation of peak flow over dam; minimum daily, 30 ft$^3$/s (0.85 m$^3$/s) Mar. 21-26, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26,900 ft$^3$/s (762 m$^3$/s) Dec. 5, elevation, 183.80 ft (56.022 m); minimum daily, 112 ft$^3$/s (3.17 m$^3$/s) Mar. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1030 | 3980 | 4020 | 3780 | 4020 | 3290 | 2430 | 2110 | 2290 | 2760 | 3550 | 2510 |
| 2 | 346 | 3970 | 11000 | 3440 | 3490 | 3490 | 1250 | 2460 | 2890 | 2200 | 3290 | 2880 |
| 3 | 2560 | 8210 | 12800 | 3470 | 3500 | 3250 | 116 | 3280 | 3370 | 142 | 3460 | 1890 |
| 4 | 3910 | 9790 | 17300 | 3310 | 3540 | 3400 | 116 | 2910 | 3590 | 1110 | 3990 | 2040 |
| 5 | 3910 | 6100 | 14000 | 3430 | 3920 | 2830 | 2510 | 3710 | 3820 | 208 | 3580 | 7010 |
| 6 | 3920 | 5940 | 5740 | 3560 | 4040 | 3260 | 1650 | 3700 | 3830 | 2580 | 3740 | 5360 |
| 7 | 3920 | 5090 | 5860 | 3430 | 3570 | 3220 | 1260 | 3680 | 3840 | 3490 | 3980 | 2340 |
| 8 | 3930 | 3970 | 7680 | 3480 | 3450 | 2770 | 2040 | 2500 | 3480 | 4000 | 3990 | 3150 |
| 9 | 3950 | 3960 | 6710 | 3460 | 3450 | 2960 | 561 | 3120 | 3830 | 4030 | 3930 | 2330 |
| 10 | 3480 | 3930 | 6460 | 3450 | 3590 | 3120 | 2650 | 3660 | 2580 | 4040 | 2660 | 1120 |
| 11 | 1790 | 3890 | 5870 | 3360 | 3470 | 597 | 3650 | 3670 | 1590 | 4050 | 3070 | 2630 |
| 12 | 1300 | 3920 | 6140 | 3380 | 3570 | 565 | 1590 | 3690 | 1950 | 4040 | 3800 | 816 |
| 13 | 728 | 3970 | 5100 | 3200 | 3180 | 539 | 2610 | 3700 | 750 | 4050 | 3780 | 2430 |
| 14 | 591 | 3960 | 4040 | 3320 | 3510 | 112 | 3160 | 1780 | 1750 | 3680 | 2650 | 2200 |
| 15 | 2080 | 8160 | 3900 | 3540 | 3710 | 1180 | 3090 | 513 | 3780 | 3060 | 2290 | 2270 |
| 16 | 2590 | 5310 | 3840 | 3990 | 3710 | 1190 | 1120 | 799 | 2900 | 3880 | 4480 | 1810 |
| 17 | 13600 | 3950 | 3930 | 4010 | 3500 | 1230 | 2620 | 2340 | 3790 | 3230 | 3950 | 1610 |
| 18 | 12600 | 4000 | 3950 | 4030 | 3510 | 1710 | 2110 | 876 | 3300 | 3460 | 2880 | 1970 |
| 19 | 5670 | 3690 | 3430 | 4040 | 3480 | 2390 | 2570 | 2180 | 3750 | 3510 | 3120 | 3250 |
| 20 | 3890 | 3690 | 3460 | 3990 | 3510 | 1900 | 3660 | 2660 | 3720 | 3290 | 5420 | 1590 |
| 21 | 3900 | 3700 | 3480 | 3570 | 3520 | 116 | 1890 | 2900 | 1320 | 3450 | 3950 | 1370 |
| 22 | 3890 | 3740 | 2080 | 3520 | 3460 | 1990 | 801 | 3590 | 123 | 3840 | 2970 | 1840 |
| 23 | 3910 | 3810 | 2630 | 3530 | 3460 | 3690 | 669 | 3710 | 123 | 3700 | 3090 | 2140 |
| 24 | 3880 | 3980 | 3020 | 3460 | 3430 | 3710 | 597 | 3180 | 126 | 4090 | 2380 | 1420 |
| 25 | 3810 | 3960 | 3280 | 3470 | 3470 | 2510 | 593 | 3480 | 903 | 3980 | 3450 | 2360 |
| 26 | 3930 | 3970 | 2420 | 3390 | 3500 | 2790 | 808 | 2840 | 3080 | 4060 | 3960 | 2000 |
| 27 | 3920 | 3970 | 3960 | 2740 | 3500 | 1470 | 1020 | 2410 | 3170 | 4060 | 3760 | 2060 |
| 28 | 3940 | 4000 | 3960 | 936 | 3470 | 1660 | 540 | 2990 | 2940 | 3990 | 3230 | 2480 |
| 29 | 3980 | 4000 | 3430 | 2550 | 3420 | 2680 | 119 | 2620 | 2840 | 2970 | 3070 | 2130 |
| 30 | 3970 | 4010 | 3940 | 3520 | --- | 1790 | 1600 | 2680 | 2950 | 3080 | 2450 | 1830 |
| 31 | 3940 | --- | 3830 | 3480 | --- | 2550 | --- | 1770 | --- | 3940 | 3480 | --- |
| TOTAL | 118865 | 138620 | 171260 | 105836 | 102950 | 67959 | 49400 | 85508 | 78375 | 101970 | 107400 | 70836 |
| MEAN | 3834 | 4621 | 5525 | 3414 | 3550 | 2192 | 1647 | 2758 | 2613 | 3289 | 3465 | 2361 |
| MAX | 13600 | 9790 | 17300 | 4040 | 4040 | 3710 | 3660 | 3710 | 3840 | 4090 | 5420 | 7010 |
| MIN | 346 | 3690 | 2080 | 936 | 3180 | 112 | 116 | 513 | 123 | 142 | 2290 | 816 |
| AC-FT | 235800 | 275000 | 339700 | 209900 | 204200 | 134800 | 97980 | 169600 | 155500 | 202300 | 213000 | 140500 |
| † | -1730 | -5,070 | +19,000 | -36,230 | -105,700 | -56,210 | +19,540 | +76,450 | +82,700 | +85,530 | +1,190 | -6,860 |
| MEAN‡ | 3,806 | 4,537 | 5,832 | 2,824 | 1,712 | 1,278 | 1,975 | 4,000 | 4,004 | 4,680 | 3,483 | 2,246 |
| AC-FT‡ | 234,100 | 269,900 | 358,700 | 173,700 | 98,500 | 78,590 | 117,500 | 246,000 | 238,200 | 287,800 | 214,200 | 133,600 |

CAL YR 1975: TOTAL 1,121,798 MEAN 3,073 MAX 17,300 MIN 83 AC-FT 2,225,000
DO.....: MEAN‡ 3,107 AC-FT‡ 2,250,000
WTR YR 1976: TOTAL 1,198,979 MEAN 3,276 MAX 17,300 MIN 112 AC-FT 2,378,000
DO.....: MEAN‡ 3,375 AC-FT‡ 2,451,000

† Change in contents, in acre-feet, in Baker Lake and Lake Shannon.
‡ Adjusted for change in contents in Baker Lake and Lake Shannon.

## 12194000 SKAGIT RIVER NEAR CONCRETE, WA

LOCATION.--Lat 48°31'28", long 121°46'11", in SE¼NE¼ sec.16, T.35 N., R.8 E., Skagit County, Hydrologic Unit 17110007, on right bank at dalles 1.3 mi (2.1 km) southwest of Concrete, 2.4 mi (3.9 km) downstream from Baker River, and at mile 54.1 (87.0 km).

DRAINAGE AREA.--2,737 mi$^2$ (7,089 km$^2$), of which 400 mi$^2$ (1,036 km$^2$) is in Canada.

PERIOD OF RECORD.-- September 1924 to current year. Chemical analyses November 1970 to September 1971, October 1973 to September 1974.

REVISED RECORDS.--WSP 1566: 1957. WSP 1736: 1948. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 130.0 ft (39.62 m) above mean sea level. Prior to Dec. 10, 1924, nonrecording gage 200 ft (61 m) upstream and Dec. 10, 1924, to Sept. 30, 1937, water-stage recorder at present site; both gages at datum 12.7 ft (3.87 m) higher.

REMARKS.--Records excellent. Flow regulated for powerplants on Baker and upper Skagit Rivers, by Ross Reservoir (see sta 12175000), and by Diablo and Gorge Reservoirs, Baker Lake, and Lake Shannon (see pp. 273, 274).

AVERAGE DISCHARGE.--52 years, 15,280 ft$^3$/s (432.7 m$^3$/s), 11,070,000 acre-ft/yr (13,600 hm$^3$/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 154,000 ft$^3$/s (4,360 m$^3$/s) Nov. 27, 1949, gage height, 40.8 ft (12.44 m); minimum probably less than 2,160 ft$^3$/s (61.2 m$^3$/s) during period Oct. 1-24, 1925, when recorder was not operating and gates in Baker River Dam were first closed; minimum daily recorded, 2,610 ft$^3$/s (73.9 m$^3$/s) Nov. 14, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of about 1815 reached a stage of 69.3 ft (21.12 m), present datum, at site 200 ft (61 m) upstream, from floodmarks, discharge about 500,000 ft$^3$/s (14,160 m$^3$/s). Records of other floods, prior to establishment of station, are given in WSP 1527.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 122,000 ft$^3$/s (3,460 m$^3$/s) Dec. 4, gage height, 36.88 ft (11.241 m); minimum, 3,920 ft$^3$/s (111 m$^3$/s) Oct. 2, gage height, 13.50 ft (4.115 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5160 | 20500 | 25700 | 20900 | 18000 | 14900 | 14900 | 17200 | 22800 | 27600 | 26300 | 15200 |
| 2 | 4440 | 24500 | 72800 | 19200 | 19000 | 14200 | 13600 | 23500 | 20700 | 27100 | 29500 | 16100 |
| 3 | 6990 | 38300 | 108000 | 17600 | 17900 | 13700 | 11100 | 23900 | 18200 | 21800 | 26900 | 15000 |
| 4 | 10400 | 44600 | 108000 | 20000 | 17700 | 13900 | 10100 | 22300 | 18500 | 23200 | 23900 | 12700 |
| 5 | 10500 | 34700 | 67900 | 21700 | 17900 | 12900 | 13700 | 24700 | 17400 | 23700 | 22500 | 20600 |
| 6 | 13200 | 34300 | 54000 | 19900 | 17500 | 13600 | 15100 | 22100 | 18000 | 29100 | 24700 | 22100 |
| 7 | 10200 | 31500 | 48200 | 19000 | 16500 | 13200 | 14300 | 21900 | 20200 | 34700 | 27300 | 16800 |
| 8 | 9130 | 28100 | 53100 | 18900 | 14900 | 13400 | 16400 | 24700 | 22800 | 37900 | 26900 | 15300 |
| 9 | 8760 | 24300 | 54200 | 18900 | 15400 | 13500 | 16600 | 28600 | 24000 | 33900 | 24400 | 13500 |
| 10 | 9940 | 20100 | 35200 | 17200 | 16700 | 14200 | 18000 | 31200 | 25100 | 33900 | 21200 | 11800 |
| 11 | 7840 | 17800 | 29400 | 18800 | 16600 | 11900 | 19700 | 33900 | 22700 | 32800 | 20300 | 12200 |
| 12 | 6460 | 16200 | 26900 | 17700 | 18300 | 11600 | 17300 | 29200 | 23900 | 28600 | 21700 | 9110 |
| 13 | 5760 | 15500 | 23000 | 16000 | 15400 | 11500 | 17100 | 26900 | 18400 | 27900 | 22500 | 11000 |
| 14 | 5560 | 25900 | 20400 | 15700 | 15200 | 10200 | 16700 | 27300 | 17700 | 27000 | 20600 | 11600 |
| 15 | 11000 | 43300 | 20400 | 25000 | 14900 | 11000 | 19100 | 20100 | 21200 | 28700 | 15300 | 12300 |
| 16 | 9780 | 32200 | 19100 | 32200 | 16600 | 9460 | 12300 | 19700 | 29400 | 33300 | 20500 | 11300 |
| 17 | 40500 | 25600 | 18100 | 27600 | 16300 | 9880 | 13300 | 25600 | 29300 | 34300 | 19300 | 12000 |
| 18 | 41900 | 23900 | 17600 | 23900 | 17000 | 12600 | 11900 | 20200 | 30000 | 34700 | 18900 | 10900 |
| 19 | 27000 | 22100 | 17000 | 22300 | 16000 | 15100 | 12100 | 19800 | 32700 | 32600 | 18900 | 10800 |
| 20 | 26400 | 20500 | 15400 | 21700 | 15400 | 14000 | 14900 | 21800 | 30600 | 31700 | 23200 | 11000 |
| 21 | 20600 | 20200 | 15400 | 17800 | 13500 | 10800 | 15000 | 20400 | 25000 | 30400 | 17300 | 11000 |
| 22 | 18500 | 16800 | 13800 | 17600 | 13700 | 13000 | 12700 | 22000 | 22200 | 26300 | 15400 | 10200 |
| 23 | 16100 | 19700 | 14200 | 17000 | 14300 | 16200 | 12500 | 23800 | 20800 | 27100 | 14300 | 9200 |
| 24 | 14400 | 37300 | 16500 | 16700 | 16000 | 16900 | 12600 | 24300 | 19500 | 31400 | 16500 | 8420 |
| 25 | 14700 | 32900 | 16900 | 15800 | 16100 | 17800 | 12600 | 25500 | 21800 | 31800 | 23100 | 8730 |
| 26 | 17100 | 29900 | 30400 | 16800 | 15400 | 16700 | 13000 | 22700 | 20000 | 30500 | 23000 | 8500 |
| 27 | 14900 | 23400 | 33400 | 28800 | 14600 | 14500 | 12800 | 29500 | 18800 | 26800 | 17600 | 9310 |
| 28 | 14400 | 20500 | 24100 | 22500 | 15000 | 13500 | 11900 | 31500 | 21700 | 22200 | 17500 | 9500 |
| 29 | 17100 | 18800 | 23400 | 19800 | 13800 | 14800 | 12000 | 23600 | 29600 | 22000 | 18000 | 9100 |
| 30 | 30000 | 18000 | 28300 | 20400 | --- | 14500 | 14800 | 21300 | 30600 | 23800 | 15300 | 9370 |
| 31 | 22800 | --- | 23700 | 18100 | --- | 15300 | --- | 18700 | --- | 27800 | 16100 | --- |
| TOTAL | 471520 | 781400 | 1074500 | 625500 | 465600 | 418740 | 428100 | 747900 | 693600 | 904600 | 648900 | 364640 |
| MEAN | 15210 | 26050 | 34660 | 20180 | 16060 | 13510 | 14270 | 24130 | 23120 | 29180 | 20930 | 12150 |
| MAX | 41900 | 44600 | 108000 | 32200 | 19000 | 17800 | 19700 | 33900 | 32700 | 37900 | 29500 | 22100 |
| MIN | 4440 | 15500 | 13800 | 15700 | 13500 | 9460 | 10100 | 17200 | 17400 | 21800 | 14300 | 8420 |
| AC-FT | 935300 | 1550000 | 2131000 | 1241000 | 923500 | 830600 | 849100 | 1483000 | 1376000 | 1794000 | 1287000 | 723300 |

CAL YR 1975 TOTAL 6590490 MEAN 18060 MAX 108000 MIN 4370 AC-FT 13070000
WTR YR 1976 TOTAL 7625000 MEAN 20830 MAX 108000 MIN 4440 AC-FT 15120000

## 12196150 SKAGIT RIVER NEAR HAMILTON, WA

LOCATION.--Lat 48°30'27", long 122°00'40", in NW¼SE¼ sec.22, T.35 N., R.6 E., Skagit County, Hydrologic Unit 17110007, on left bank 1.5 mi (2.4 km) southwest of Hamilton, 2.3 mi (3.7 km) upstream from mouth of Day Creek, and at mile 36.5 (58.7 km).

DRAINAGE AREA.--2,870 mi² (7,480 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 100 ft (30.5 m), from topographic map.

REMARKS.--Water-discharge records fair. Flow regulated for powerplants on Baker and upper Skagit Rivers by Ross Reservoir (see sta 12175000) and by Diablo and Gorge Reservoirs, Baker Lake and Lake Shannon (see pp. 273, 274).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 122,000 ft³/s (3,460 m³/s) Dec. 4, 1975, gage height, 20.16 ft(6.145 m); minimum, 3,920 ft³/s (111 m³/s) Sept. 28, 1975, gage height, 2.42 ft (0.738 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 122,000 ft³/s (3,460 m³/s) Dec. 4, gage height, 20.16 ft (6.145 m); minimum, 4,050 ft³/s (115 m³/s) Oct. 1, gage height, 2.48 ft (0.756 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5430 | 22000 | 28000 | 24200 | 19500 | 15400 | 15900 | 18600 | 23600 | 27600 | 24900 | 14800 |
| 2 | 4900 | 22700 | 76000 | 22300 | 20000 | 14900 | 14800 | 24800 | 21700 | 27300 | 29000 | 15700 |
| 3 | 6110 | 38600 | 114000 | 20500 | 19500 | 14300 | 12300 | 25400 | 18900 | 22800 | 26600 | 15000 |
| 4 | 10100 | 42800 | 114000 | 22900 | 19000 | 14500 | 11200 | 22900 | 19000 | 22500 | 23600 | 12600 |
| 5 | 11100 | 37000 | 70000 | 26200 | 19000 | 13700 | 14100 | 25100 | 17600 | 23400 | 22500 | 18000 |
| 6 | 14800 | 34200 | 55000 | 23300 | 18500 | 13900 | 16200 | 23500 | 18000 | 27000 | 23500 | 23400 |
| 7 | 10900 | 32400 | 49800 | 21800 | 17500 | 13800 | 15500 | 22500 | 19500 | 33000 | 26500 | 16900 |
| 8 | 9800 | 29700 | 55100 | 22400 | 16500 | 13900 | 17300 | 25400 | 22000 | 37000 | 26900 | 15500 |
| 9 | 9400 | 25500 | 59700 | 21800 | 16100 | 13900 | 18700 | 29600 | 24000 | 35000 | 23600 | 13700 |
| 10 | 10000 | 22000 | 40600 | 20500 | 17500 | 14700 | 19100 | 32200 | 25000 | 33200 | 21500 | 12000 |
| 11 | 9200 | 19000 | 33500 | 21500 | 17300 | 13300 | 21400 | 34700 | 22500 | 32300 | 19700 | 12300 |
| 12 | 7320 | 17400 | 30300 | 20200 | 21000 | 12300 | 19100 | 30600 | 23700 | 28600 | 21000 | 9810 |
| 13 | 6000 | 16900 | 26900 | 18200 | 17600 | 12300 | 17900 | 26900 | 20000 | 28100 | 22000 | 10600 |
| 14 | 5800 | 29700 | 23700 | 17000 | 16900 | 11300 | 17400 | 28600 | 17600 | 25500 | 20700 | 11900 |
| 15 | 9900 | 45000 | 23900 | 28000 | 17100 | 11600 | 20100 | 20900 | 19700 | 28300 | 15000 | 11900 |
| 16 | 10200 | 36600 | 22100 | 39000 | 19200 | 10400 | 14300 | 19500 | 29000 | 32000 | 19600 | 11700 |
| 17 | 33000 | 28000 | 21100 | 32000 | 19300 | 10900 | 13600 | 25400 | 30500 | 33700 | 19100 | 12100 |
| 18 | 53500 | 25000 | 20300 | 26500 | 19100 | 13800 | 13000 | 21000 | 29000 | 34500 | 18300 | 11100 |
| 19 | 30000 | 22500 | 19400 | 23500 | 18200 | 15900 | 13100 | 19600 | 32500 | 32400 | 18500 | 10900 |
| 20 | 28000 | 21000 | 18000 | 23000 | 17300 | 15200 | 15200 | 21700 | 31500 | 31200 | 23000 | 11100 |
| 21 | 22000 | 20500 | 17600 | 20000 | 15500 | 12300 | 16200 | 21000 | 26000 | 29700 | 17300 | 11100 |
| 22 | 19600 | 17700 | 16300 | 19000 | 15000 | 13500 | 13700 | 21600 | 22500 | 25900 | 15100 | 10300 |
| 23 | 17300 | 21000 | 16400 | 18500 | 15800 | 17300 | 13500 | 23700 | 21400 | 26000 | 13100 | 9450 |
| 24 | 14900 | 37500 | 20300 | 18000 | 17100 | 17700 | 13300 | 23800 | 19500 | 30300 | 15100 | 8960 |
| 25 | 15500 | 39100 | 20600 | 17000 | 17500 | 19600 | 13700 | 26000 | 21400 | 31300 | 21300 | 8900 |
| 26 | 18300 | 32300 | 34900 | 18000 | 18000 | 17900 | 14100 | 22400 | 21000 | 29700 | 24000 | 8840 |
| 27 | 17200 | 26000 | 39800 | 30000 | 15100 | 15900 | 13800 | 28600 | 18600 | 26800 | 17900 | 9550 |
| 28 | 16000 | 23500 | 28300 | 25000 | 15700 | 14400 | 13200 | 33700 | 21000 | 21600 | 16900 | 9710 |
| 29 | 18900 | 20000 | 27400 | 21500 | 14600 | 15500 | 13100 | 25500 | 27000 | 21000 | 17400 | 9360 |
| 30 | 33500 | 19000 | 33600 | 22000 | --- | 15400 | 16000 | 22500 | 29600 | 23000 | 15500 | 9520 |
| 31 | 28000 | --- | 27800 | 20000 | --- | 16100 | --- | 18900 | --- | 26900 | 15800 | --- |
| TOTAL | 506660 | 824600 | 1184400 | 703800 | 510400 | 445600 | 460800 | 766600 | 693300 | 887600 | 634900 | 366700 |
| MEAN | 16340 | 27490 | 38210 | 22700 | 17600 | 14370 | 15360 | 24730 | 23110 | 28630 | 20480 | 12220 |
| MAX | 53500 | 45000 | 114000 | 39000 | 21000 | 19600 | 21400 | 34700 | 32500 | 37000 | 29000 | 23400 |
| MIN | 4900 | 16900 | 16300 | 17000 | 14600 | 10400 | 11200 | 18600 | 17600 | 21000 | 13100 | 8840 |
| AC-FT | 1005000 | 1636000 | 2349000 | 1396000 | 1012000 | 883800 | 914000 | 1521000 | 1375000 | 1761000 | 1259000 | 727300 |

WTR YR 1976 TOTAL 7985360 MEAN 21820 MAX 114000 MIN 4900 AC-FT 15840000

NOTE.--No gage-height record Jan. 14 to Feb. 26 and May 7 to July 16.

## 12196150 SKAGIT RIVER NEAR HAMILTON, WA--Continued

### WATER-QUALITY RECORDS

**PERIOD OF DAILY RECORD.**--
**WATER TEMPERATURE:** November 1974 to current year.

**INSTRUMENTATION.**--Temperature recorder since Nov. 6, 1974.

**REMARKS.**--Temperature recorder clock stopped Oct. 17 to Nov. 5 (range in temperature 7.0°C to 10.5°C), Feb. 9-26 (range in temperature 3.5°C to 5.0°C), July 1-16 (range in temperature 8.5°C to 11.0°C), Sept. 5-8 (range in temperature 10.0°C to 11.5°C).

**EXTREMES FOR PERIOD OF DAILY RECORD.**--
**WATER TEMPERATURE:** Maximum, 15.0°C Aug. 14, 1975; minimum, 2.0°C Feb. 8, 1975.

**EXTREMES FOR CURRENT YEAR.**--
**WATER TEMPERATURE:** Maximum, 13.5°C July 31, Sept. 25; minimum, 3.0°C Feb. 5-7.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 13.0 | 11.5 | --- | --- | 4.5 | 4.0 | 4.5 | 4.0 | 4.0 | 3.5 | 4.0 | 3.5 |
| 2 | 11.5 | 10.5 | --- | --- | 5.0 | 4.5 | 4.5 | 4.5 | 4.0 | 3.5 | 4.0 | 3.5 |
| 3 | 11.5 | 10.5 | --- | --- | 5.5 | 5.0 | 4.5 | 4.5 | 4.5 | 4.0 | 3.5 | 3.5 |
| 4 | 11.5 | 11.0 | --- | --- | 5.5 | 5.0 | 4.5 | 4.5 | 4.5 | 3.5 | 4.0 | 3.5 |
| 5 | 11.0 | 10.0 | --- | --- | 5.0 | 5.0 | 4.5 | 4.5 | 3.5 | 3.0 | 4.0 | 3.5 |
| 6 | 10.5 | 9.5 | 8.0 | 7.0 | 5.5 | 5.0 | 4.5 | 4.5 | 3.0 | 3.0 | 4.0 | 3.5 |
| 7 | 10.5 | 10.0 | 7.0 | 7.0 | 6.0 | 5.5 | 4.5 | 4.5 | 3.5 | 3.0 | 5.0 | 4.0 |
| 8 | 11.0 | 9.5 | 7.0 | 6.5 | 6.0 | 6.0 | 4.5 | 4.5 | 3.5 | 3.5 | 4.5 | 4.0 |
| 9 | 11.0 | 10.5 | 6.5 | 6.0 | 6.0 | 6.0 | 4.5 | 4.5 | --- | --- | 4.5 | 4.5 |
| 10 | 11.0 | 10.5 | 7.0 | 6.5 | 6.0 | 5.0 | 4.5 | 4.5 | --- | --- | 4.5 | 4.0 |
| 11 | 11.0 | 9.5 | 7.0 | 6.5 | 5.0 | 5.0 | 4.5 | 3.5 | --- | --- | 5.0 | 4.0 |
| 12 | 11.0 | 10.0 | 7.0 | 6.5 | 5.0 | 4.5 | 4.0 | 4.0 | --- | --- | 4.5 | 4.0 |
| 13 | 11.0 | 10.0 | 7.0 | 7.0 | 4.5 | 4.5 | 4.0 | 4.0 | --- | --- | 4.5 | 4.0 |
| 14 | 10.5 | 9.5 | 7.0 | 6.5 | 4.5 | 4.5 | 4.0 | 4.0 | --- | --- | 5.0 | 4.5 |
| 15 | 10.0 | 9.5 | 7.0 | 6.0 | 5.0 | 4.5 | 4.0 | 4.0 | --- | --- | 5.0 | 5.0 |
| 16 | 10.0 | 9.0 | 6.0 | 6.0 | 5.0 | 4.5 | 4.5 | 4.0 | --- | --- | 5.5 | 5.0 |
| 17 | --- | --- | 6.0 | 6.0 | 4.5 | 4.0 | 4.5 | 4.0 | --- | --- | 5.5 | 5.0 |
| 18 | --- | --- | 6.0 | 6.0 | 4.5 | 4.0 | 5.0 | 4.5 | --- | --- | 5.5 | 5.0 |
| 19 | --- | --- | 6.0 | 5.5 | 4.5 | 4.0 | 4.5 | 4.0 | --- | --- | 5.0 | 4.5 |
| 20 | --- | --- | 6.0 | 6.0 | 4.5 | 4.0 | 4.0 | 4.0 | --- | --- | 4.5 | 4.0 |
| 21 | --- | --- | 6.5 | 6.0 | 4.5 | 4.0 | 4.0 | 4.0 | --- | --- | 5.5 | 4.5 |
| 22 | --- | --- | 6.5 | 6.0 | 5.0 | 4.5 | 4.5 | 4.0 | --- | --- | 5.5 | 5.0 |
| 23 | --- | --- | 6.5 | 6.0 | 5.0 | 5.0 | 4.5 | 4.5 | --- | --- | 5.0 | 5.0 |
| 24 | --- | --- | 6.0 | 5.5 | 5.0 | 5.0 | 4.5 | 4.0 | --- | --- | 5.0 | 5.0 |
| 25 | --- | --- | 6.0 | 5.5 | 5.0 | 4.5 | 4.5 | 4.0 | --- | --- | 5.0 | 5.0 |
| 26 | --- | --- | 6.0 | 6.0 | 5.5 | 4.5 | 4.5 | 4.0 | --- | --- | 5.5 | 5.0 |
| 27 | --- | --- | 6.0 | 5.5 | 5.0 | 4.5 | 4.5 | 4.5 | 4.0 | 4.0 | 5.0 | 5.0 |
| 28 | --- | --- | 5.5 | 5.0 | 4.5 | 4.5 | 4.5 | 4.5 | 4.0 | 3.5 | 5.5 | 5.0 |
| 29 | --- | --- | 5.0 | 4.5 | 5.0 | 4.5 | 5.0 | 4.5 | 4.0 | 3.5 | 5.5 | 5.5 |
| 30 | --- | --- | 4.5 | 4.0 | 5.0 | 5.0 | 5.0 | 4.5 | --- | --- | 5.5 | 5.5 |
| 31 | --- | --- | --- | --- | 5.0 | 4.5 | 4.5 | 4.0 | --- | --- | 6.0 | 5.5 |
| MONTH | --- | --- | 8.0 | 4.0 | 6.0 | 4.0 | 5.0 | 3.5 | --- | --- | 6.0 | 3.5 |

| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 6.0 | 5.0 | 9.0 | 8.5 | 8.5 | 7.0 | --- | --- | 13.0 | 12.0 | 12.0 | 10.0 |
| 2 | 6.5 | 5.5 | 8.5 | 6.5 | 8.5 | 8.0 | --- | --- | 13.0 | 12.0 | 12.0 | 10.0 |
| 3 | 7.0 | 6.0 | 7.0 | 6.0 | 9.5 | 8.5 | --- | --- | 12.0 | 10.5 | 12.0 | 11.5 |
| 4 | 8.0 | 7.0 | 7.0 | 7.0 | 10.0 | 8.5 | --- | --- | 11.0 | 10.0 | 12.0 | 12.0 |
| 5 | 7.0 | 7.0 | 8.0 | 7.0 | 10.5 | 9.0 | --- | --- | 10.5 | 10.5 | --- | --- |
| 6 | 7.0 | 7.0 | 8.5 | 6.5 | 10.5 | 10.0 | --- | --- | 11.5 | 10.0 | --- | --- |
| 7 | 7.0 | 6.0 | 9.0 | 8.0 | 10.5 | 9.5 | --- | --- | 11.5 | 10.0 | --- | --- |
| 8 | 6.0 | 6.0 | 9.0 | 8.5 | 10.5 | 9.5 | --- | --- | 10.0 | 10.0 | --- | --- |
| 9 | 7.0 | 5.5 | 8.5 | 7.0 | 10.0 | 8.5 | --- | --- | 11.0 | 10.0 | 11.5 | 11.5 |
| 10 | 7.0 | 6.5 | 8.5 | 6.0 | 10.0 | 8.5 | --- | --- | 12.0 | 10.5 | 12.0 | 11.0 |
| 11 | 7.0 | 6.0 | 7.0 | 6.0 | 9.0 | 8.0 | --- | --- | 12.0 | 11.5 | 12.0 | 11.0 |
| 12 | 6.5 | 6.0 | 7.0 | 6.5 | 8.5 | 8.0 | --- | --- | 12.0 | 12.0 | 11.5 | 11.0 |
| 13 | 7.0 | 6.5 | 7.0 | 6.5 | 9.0 | 8.0 | --- | --- | 12.0 | 11.0 | 12.0 | 11.0 |
| 14 | 6.5 | 5.0 | 8.5 | 6.0 | 10.0 | 8.5 | --- | --- | 11.0 | 10.0 | 11.5 | 11.5 |
| 15 | 5.0 | 5.0 | 9.0 | 8.0 | 10.5 | 9.0 | --- | --- | 12.0 | 11.0 | 12.0 | 11.0 |
| 16 | 6.5 | 5.0 | 9.0 | 8.5 | 9.0 | 8.5 | --- | --- | 11.5 | 11.0 | 13.0 | 12.0 |
| 17 | 6.5 | 6.0 | 9.0 | 8.0 | 10.5 | 8.5 | 11.0 | 10.5 | 11.0 | 10.5 | 12.0 | 11.5 |
| 18 | 6.5 | 6.0 | 8.5 | 6.5 | 10.5 | 9.5 | 12.0 | 11.0 | 11.0 | 10.0 | 12.0 | 11.0 |
| 19 | 7.0 | 6.5 | 9.0 | 8.5 | 10.5 | 8.5 | 12.0 | 10.5 | 11.0 | 10.0 | 13.0 | 12.0 |
| 20 | 7.0 | 6.0 | 9.0 | 8.0 | 10.0 | 8.5 | 11.5 | 10.5 | 11.0 | 10.0 | 13.0 | 12.0 |
| 21 | 6.5 | 5.5 | 9.5 | 8.5 | 10.0 | 9.5 | 12.0 | 11.0 | 11.0 | 10.0 | 12.0 | 12.0 |
| 22 | 7.0 | 6.5 | 9.5 | 9.0 | 9.5 | 8.5 | 11.5 | 11.0 | 10.0 | 10.0 | 12.0 | 12.0 |
| 23 | 6.5 | 6.0 | 9.0 | 8.5 | 9.0 | 8.5 | 11.5 | 11.0 | 11.5 | 9.0 | 12.0 | 11.5 |
| 24 | 6.5 | 6.0 | 8.5 | 7.0 | 8.5 | 8.0 | 11.5 | 11.0 | 11.5 | 11.0 | 13.0 | 11.5 |
| 25 | 6.5 | 6.0 | 8.0 | 7.0 | 9.0 | 8.0 | 11.5 | 11.0 | 11.5 | 10.5 | 13.5 | 12.0 |
| 26 | 8.0 | 6.0 | 8.5 | 8.0 | 10.0 | 8.5 | 11.0 | 10.5 | 10.5 | 10.0 | 13.0 | 11.5 |
| 27 | 8.5 | 7.0 | 8.5 | 7.0 | 10.5 | 9.5 | 11.0 | 10.0 | 10.5 | 10.0 | 12.0 | 11.5 |
| 28 | 8.5 | 8.0 | 7.0 | 6.5 | 10.5 | 10.0 | 12.0 | 10.5 | 11.5 | 10.0 | 12.0 | 11.5 |
| 29 | 9.5 | 8.5 | 8.0 | 7.0 | 11.0 | 10.0 | 12.0 | 11.5 | 12.0 | 11.0 | 13.0 | 11.5 |
| 30 | 9.0 | 8.5 | 8.0 | 7.0 | 10.0 | 9.0 | 13.0 | 11.0 | 11.5 | 10.5 | 12.0 | 11.5 |
| 31 | --- | --- | 8.0 | 8.0 | --- | --- | 13.5 | 12.0 | 12.0 | 11.0 | --- | --- |
| MONTH | 9.5 | 5.0 | 9.5 | 6.0 | 11.0 | 7.0 | --- | --- | 13.0 | 9.0 | 13.5 | 10.0 |
| YEAR | 13.5 | 3.0 | | | | | | | | | | |

## 12197020 CHILDS CREEK NEAR LYMAN, WA

LOCATION.--Lat 48°31'46", long 122°05'17", on line between secs.7 and 18, T.35 N., R.6 E., Skagit County, Hydrologic Unit 17110007, on right bank, 50 ft (15 m) upstream from State Highway 20 crossing, and 1.2 mi (1.9 km) west of Lyman.

DRAINAGE AREA.--About 2.4 $mi^2$ (6.2 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1974 to September 1976 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 100 ft (30.5 m) from topographic map.

REMARKS.--Records fair except those above 100 $ft^3/s$ (2.83 $m^3/s$) which are poor. No known regulation or diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 320 $ft^3/s$ (9.06 $m^3/s$) Dec. 2, 1975, gage height, 2.97 ft (0.905 m), maximum gage height, 3.50 ft (1.067 m) date and time unknown (backwater from blocked culvert) during December 1975; minimum discharge 0.16 $ft^3/s$ (0.005 $m^3/s$) Sept. 2, 3, 1974; minimum gage height, 0.58 ft (0.177 m) Aug. 15, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 320 $ft^3/s$ (9.06 $m^3/s$) Dec. 2, gage height, 2.97 ft (0.905 m); maximum gage height, 3.50 ft (1.067 m) date and time unknown (backwater from blocked culvert) during December; minimum, 0.39 $ft^3/s$ (0.011 $m^3/s$) Oct. 1, 2, gage height, 0.59 ft (0.180 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .44 | 6.8 | 200 | 9.5 | 7.2 | 5.0 | 7.7 | 15 | 5.3 | 2.2 | .55 | 1.3 |
| 2 | .44 | 10 | 197 | 8.2 | 6.3 | 4.4 | 6.6 | 17 | 3.9 | 1.9 | .55 | 1.3 |
| 3 | .50 | 13 | 65 | 8.0 | 5.6 | 3.9 | 6.4 | 5.6 | 3.0 | 1.7 | .69 | 1.3 |
| 4 | .69 | 7.3 | 40 | 10 | 5.2 | 3.7 | 7.2 | 5.0 | 2.6 | 3.4 | .61 | 1.2 |
| 5 | 4.2 | 7.9 | 20 | 13 | 4.6 | 3.7 | 10 | 5.9 | 2.4 | 2.4 | .61 | 12 |
| 6 | 2.3 | 9.3 | 16 | 10 | 4.3 | 3.7 | 11 | 5.0 | 2.4 | 1.9 | .61 | 8.2 |
| 7 | 1.1 | 9.6 | 14 | 9.1 | 4.3 | 3.7 | 11 | 7.4 | 2.2 | 1.7 | .95 | 5.0 |
| 8 | .90 | 11 | 42 | 9.2 | 4.0 | 3.7 | 14 | 5.6 | 2.0 | 2.0 | 1.9 | 3.2 |
| 9 | .83 | 13 | 54 | 7.7 | 4.0 | 3.7 | 13 | 4.2 | 1.9 | 1.9 | 1.1 | 2.4 |
| 10 | 1.2 | 9.6 | 29 | 7.4 | 4.4 | 6.6 | 14 | 9.4 | 1.9 | 1.7 | .77 | 1.9 |
| 11 | .97 | 7.0 | 13 | 7.5 | 6.0 | 5.9 | 16 | 8.6 | 1.7 | 1.6 | .69 | 1.9 |
| 12 | .83 | 6.6 | 12 | 6.2 | 14 | 5.0 | 11 | 5.9 | 2.4 | 1.4 | .61 | 1.7 |
| 13 | .83 | 15 | 10 | 5.6 | 9.0 | 4.7 | 9.4 | 5.3 | 2.0 | 1.4 | .69 | 1.6 |
| 14 | 1.3 | 25 | 9.0 | 13 | 7.8 | 4.4 | 8.7 | 4.4 | 1.7 | 1.3 | .77 | 2.6 |
| 15 | 3.5 | 39 | 9.2 | 101 | 7.6 | 4.2 | 8.2 | 4.2 | 6.2 | 1.2 | 1.1 | 1.9 |
| 16 | 2.7 | 17 | 7.8 | 72 | 11 | 4.4 | 6.8 | 4.4 | 15 | 1.1 | 2.4 | 1.7 |
| 17 | 8.2 | 13 | 7.4 | 29 | 14 | 6.6 | 6.0 | 3.9 | 5.6 | .95 | 2.4 | 1.2 |
| 18 | 15 | 10 | 7.2 | 19 | 11 | 8.2 | 5.8 | 3.2 | 3.9 | .95 | 1.3 | 1.2 |
| 19 | 12 | 8.2 | 7.2 | 12 | 9.0 | 6.2 | 6.4 | 3.0 | 3.7 | .85 | 4.2 | 1.2 |
| 20 | 7.0 | 6.8 | 7.2 | 9.7 | 7.6 | 7.0 | 15 | 2.8 | 3.0 | .85 | 17 | .95 |
| 21 | 4.4 | 6.0 | 6.8 | 8.7 | 6.5 | 6.2 | 9.4 | 2.6 | 2.6 | .95 | 4.4 | .85 |
| 22 | 3.8 | 6.0 | 6.6 | 9.6 | 5.9 | 10 | 7.4 | 2.6 | 2.8 | .85 | 2.6 | .95 |
| 23 | 3.5 | 54 | 8.8 | 8.8 | 6.2 | 9.0 | 6.6 | 2.4 | 2.4 | .85 | 2.2 | 1.0 |
| 24 | 2.9 | 90 | 17 | 7.6 | 6.0 | 11 | 7.4 | 2.8 | 2.4 | .77 | 2.0 | .92 |
| 25 | 4.8 | 28 | 11 | 6.8 | 5.7 | 15 | 7.0 | 3.4 | 2.6 | .69 | 2.4 | .84 |
| 26 | 6.3 | 62 | 34 | 7.4 | 5.3 | 9.0 | 7.0 | 3.4 | 2.2 | .69 | 2.4 | .79 |
| 27 | 5.5 | 40 | 16 | 22 | 5.2 | 6.6 | 9.4 | 4.2 | 2.0 | .69 | 3.2 | .77 |
| 28 | 6.0 | 30 | 12 | 11 | 5.9 | 9.4 | 10 | 3.9 | 1.7 | .61 | 3.0 | .76 |
| 29 | 16 | 20 | 27 | 11 | 5.9 | 6.6 | 12 | 3.7 | 1.7 | .61 | 2.0 | .77 |
| 30 | 21 | 40 | 21 | 9.0 | --- | 7.0 | 13 | 3.0 | 1.6 | .61 | 1.7 | .82 |
| 31 | 10 | --- | 11 | 8.0 | --- | 9.8 | --- | 2.8 | --- | .55 | 1.4 | --- |
| TOTAL | 149.13 | 621.1 | 938.2 | 477.0 | 199.5 | 198.3 | 283.4 | 160.6 | 94.8 | 40.27 | 66.80 | 62.22 |
| MEAN | 4.81 | 20.7 | 30.3 | 15.4 | 6.88 | 6.40 | 9.45 | 5.18 | 3.16 | 1.30 | 2.15 | 2.07 |
| MAX | 21 | 90 | 200 | 101 | 14 | 15 | 16 | 17 | 15 | 3.4 | 17 | 12 |
| MIN | .44 | 6.0 | 6.6 | 5.6 | 4.0 | 3.7 | 5.8 | 2.4 | 1.6 | .55 | .55 | .76 |
| AC-FT | 296 | 1230 | 1860 | 946 | 396 | 393 | 562 | 319 | 188 | 80 | 132 | 123 |

CAL YR 1975 TOTAL 3254.78 MEAN 8.92 MAX 200 MIN .39 AC-FT 6460
WTR YR 1976 TOTAL 3291.32 MEAN 8.99 MAX 200 MIN .44 AC-FT 6530

## 12197020 CHILDS CREEK NEAR LYMAN, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: April 1974 to September 1976 (discontinued).

INSTRUMENTATION.--Temperature recorder since Apr. 25, 1974.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 21.5°C Aug. 29, 1974; minimum, 0.0°C Jan. 11, 12, Feb. 8, 1975; Feb. 5, 6, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 18.5°C July 24, Aug. 2; minimum, 0.0°C Feb. 5, 6.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 18.0 | 11.0 | 8.5 | 7.0 | 4.5 | 1.5 | 3.0 | 2.0 | 4.5 | 3.5 | 4.5 | 1.5 |
| 2 | 16.5 | 11.0 | 8.0 | 8.0 | 6.0 | 4.5 | 3.5 | 2.0 | 4.0 | 3.5 | 4.5 | 1.5 |
| 3 | 13.5 | 11.0 | 10.0 | 8.0 | 7.0 | 6.0 | 4.0 | 3.5 | 6.5 | 3.0 | 3.5 | 0.5 |
| 4 | 13.5 | 11.0 | 11.0 | 10.0 | 7.0 | 5.5 | 4.5 | 4.0 | 4.5 | 1.0 | 4.0 | 0.5 |
| 5 | 11.0 | 9.5 | 10.5 | 8.0 | 5.5 | 4.5 | 4.5 | 4.0 | 3.5 | 0.0 | 5.0 | 1.0 |
| 6 | 11.5 | 9.0 | 8.0 | 7.0 | 4.5 | 4.0 | 4.5 | 4.0 | 4.5 | 0.0 | 5.0 | 2.0 |
| 7 | 10.0 | 8.5 | 7.0 | 6.5 | 5.5 | 4.5 | 4.0 | 3.5 | 4.5 | 1.5 | 6.5 | 3.5 |
| 8 | 11.5 | 9.0 | 6.5 | 4.5 | 6.0 | 5.0 | 4.5 | 4.0 | 5.0 | 3.5 | 6.5 | 3.0 |
| 9 | 11.0 | 10.0 | 5.5 | 4.5 | 6.5 | 6.0 | 5.0 | 4.5 | 4.0 | 3.0 | 6.0 | 4.5 |
| 10 | 13.0 | 10.0 | 5.5 | 4.5 | 6.0 | 4.5 | 4.5 | 4.0 | 4.5 | 3.5 | 5.5 | 4.0 |
| 11 | 10.5 | 9.0 | 5.5 | 5.0 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 | 4.0 | 6.0 | 3.0 |
| 12 | 10.5 | 9.0 | 6.5 | 5.5 | 4.5 | 3.5 | 4.0 | 3.0 | 4.5 | 4.0 | 5.0 | 3.5 |
| 13 | 12.0 | 10.0 | 6.5 | 5.5 | 3.5 | 2.0 | 4.0 | 3.0 | 5.5 | 4.0 | 5.0 | 3.5 |
| 14 | 10.5 | 9.5 | 8.0 | 6.5 | 3.5 | 3.5 | 4.0 | 3.5 | 5.0 | 4.0 | 6.5 | 3.5 |
| 15 | 11.0 | 9.5 | 8.0 | 5.5 | 4.5 | 3.0 | 5.0 | 4.0 | 5.0 | 4.0 | 6.5 | 3.5 |
| 16 | 10.5 | 9.0 | 5.5 | 5.0 | 3.5 | 2.0 | 6.5 | 5.0 | 4.5 | 4.0 | 6.5 | 4.5 |
| 17 | 11.0 | 10.0 | 5.0 | 4.0 | 3.5 | 2.0 | 5.5 | 5.0 | 4.5 | 4.0 | 6.5 | 5.5 |
| 18 | 10.0 | 9.0 | 4.5 | 3.5 | 3.5 | 2.0 | 6.0 | 4.0 | 4.5 | 4.0 | 6.5 | 4.5 |
| 19 | 9.0 | 8.0 | 5.0 | 3.5 | 4.0 | 2.0 | 5.0 | 3.5 | 4.5 | 3.5 | 5.5 | 4.0 |
| 20 | 9.0 | 8.0 | 5.0 | 3.5 | 4.0 | 2.0 | 5.5 | 4.0 | 5.5 | 4.0 | 4.5 | 3.5 |
| 21 | 8.5 | 8.0 | 5.0 | 4.0 | 4.5 | 3.5 | 5.5 | 4.5 | 5.0 | 3.5 | 5.5 | 3.5 |
| 22 | 8.0 | 6.5 | 5.5 | 5.0 | 5.0 | 4.5 | 5.5 | 4.5 | 5.5 | 4.5 | 4.5 | 3.5 |
| 23 | 8.0 | 5.5 | 5.5 | 5.5 | 5.0 | 4.5 | 5.5 | 4.0 | 5.5 | 4.5 | 4.5 | 3.5 |
| 24 | 6.5 | 5.5 | 6.5 | 5.5 | 6.0 | 4.5 | 4.0 | 3.5 | 4.5 | 4.0 | 4.5 | 3.5 |
| 25 | 6.0 | 5.5 | 6.5 | 6.5 | 5.0 | 4.5 | 4.5 | 4.0 | 5.0 | 3.5 | 4.5 | 4.0 |
| 26 | 6.0 | 5.5 | 6.5 | 5.5 | 6.5 | 5.0 | 5.5 | 4.0 | 5.5 | 3.0 | 4.5 | 4.0 |
| 27 | 6.5 | 5.5 | 6.5 | 4.5 | 5.0 | 4.5 | 5.5 | 4.5 | 5.0 | 3.5 | 5.5 | 3.5 |
| 28 | 6.5 | 6.0 | 4.5 | 3.5 | 5.0 | 4.5 | 6.5 | 5.0 | 3.5 | 1.5 | 4.5 | 3.5 |
| 29 | 6.5 | 5.5 | 3.5 | 2.0 | 6.5 | 5.0 | 6.5 | 5.5 | 3.5 | 2.0 | 5.5 | 3.5 |
| 30 | 6.5 | 6.5 | 2.0 | 1.0 | 5.0 | 3.5 | 6.5 | 5.0 | --- | --- | 5.5 | 4.5 |
| 31 | 7.0 | 6.5 | --- | --- | 4.0 | 3.0 | 5.5 | 4.0 | --- | --- | 5.5 | 3.5 |
| MONTH | 18.0 | 5.5 | 11.0 | 1.0 | 7.0 | 1.5 | 6.5 | 2.0 | 6.5 | 0.0 | 6.5 | 0.5 |

| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 6.5 | 3.0 | 11.0 | 8.0 | 8.0 | 6.5 | 12.0 | 11.0 | 15.5 | 12.0 | 13.5 | 12.0 |
| 2 | 7.0 | 3.5 | 8.0 | 6.5 | 9.0 | 6.5 | 14.5 | 10.0 | 18.5 | 13.0 | 15.5 | 11.5 |
| 3 | 8.5 | 4.5 | 9.0 | 6.5 | 10.0 | 6.0 | 12.0 | 11.0 | 14.0 | 13.0 | 15.5 | 11.5 |
| 4 | 9.0 | 4.5 | 9.0 | 7.0 | 10.5 | 6.5 | 13.5 | 11.0 | 16.0 | 12.0 | 14.5 | 12.0 |
| 5 | 9.0 | 5.0 | 8.0 | 6.5 | 11.5 | 7.0 | 15.5 | 11.5 | 14.5 | 13.0 | 13.5 | 11.5 |
| 6 | 7.0 | 5.5 | 10.5 | 5.5 | 12.0 | 8.5 | 14.5 | 13.0 | 15.5 | 13.0 | 11.5 | 10.5 |
| 7 | 7.0 | 4.5 | 11.0 | 6.5 | 12.0 | 8.5 | 14.5 | 13.0 | 14.0 | 13.0 | 13.0 | 10.0 |
| 8 | 6.5 | 5.0 | 11.5 | 8.5 | 12.0 | 9.0 | 14.0 | 13.0 | 13.5 | 12.0 | 13.5 | 10.0 |
| 9 | 9.0 | 4.5 | 12.0 | 8.0 | 13.5 | 10.0 | 13.0 | 12.0 | 15.0 | 12.0 | 14.5 | 10.5 |
| 10 | 9.0 | 5.0 | 10.0 | 8.0 | 11.0 | 10.0 | 15.0 | 11.0 | 17.0 | 12.0 | 14.5 | 11.0 |
| 11 | 5.5 | 4.5 | 10.0 | 8.0 | 10.0 | 9.5 | 13.5 | 12.0 | 18.0 | 12.0 | 13.0 | 11.0 |
| 12 | 8.0 | 4.0 | 10.0 | 8.0 | 10.0 | 9.0 | 12.0 | 11.0 | 18.0 | 13.0 | 13.0 | 11.5 |
| 13 | 8.0 | 4.5 | 9.0 | 8.0 | 10.0 | 8.0 | 14.5 | 11.0 | 14.0 | 12.0 | 14.5 | 11.0 |
| 14 | 5.5 | 4.5 | 10.5 | 7.0 | 12.0 | 8.0 | 15.5 | 10.5 | 16.0 | 12.0 | 13.5 | 12.0 |
| 15 | 5.0 | 3.5 | 12.0 | 8.0 | 10.0 | 10.0 | 16.5 | 11.5 | 15.0 | 12.0 | 14.0 | 11.5 |
| 16 | 6.5 | 3.5 | 12.0 | 9.5 | 10.0 | 9.5 | 16.5 | 11.0 | 12.0 | 11.5 | 14.5 | 11.5 |
| 17 | 6.0 | 5.0 | 10.0 | 8.0 | 13.5 | 9.5 | 16.0 | 11.5 | 13.5 | 11.5 | 13.0 | 11.5 |
| 18 | 6.5 | 4.5 | 11.0 | 6.5 | 14.5 | 11.0 | 15.5 | 10.0 | 15.0 | 11.0 | 15.0 | 11.0 |
| 19 | 9.0 | 5.0 | 10.5 | 8.0 | 13.0 | 10.0 | 16.0 | 10.0 | 12.0 | 11.0 | 16.0 | 12.0 |
| 20 | 6.5 | 4.5 | 10.0 | 8.0 | 13.5 | 9.0 | 16.0 | 12.0 | 13.0 | 11.0 | 16.5 | 12.0 |
| 21 | 8.5 | 4.5 | 11.5 | 8.0 | 12.0 | 10.0 | 14.0 | 11.5 | 13.5 | 10.5 | 14.5 | 12.0 |
| 22 | 8.0 | 5.5 | 10.5 | 9.0 | 12.0 | 10.0 | 13.0 | 11.0 | 12.0 | 11.0 | 14.0 | 13.0 |
| 23 | 6.5 | 5.5 | 10.0 | 8.5 | 10.5 | 10.0 | 18.0 | 11.5 | 13.5 | 11.5 | 14.0 | 13.0 |
| 24 | 6.5 | 5.5 | 9.0 | 8.0 | 11.0 | 9.5 | 18.5 | 13.0 | 14.5 | 12.0 | 16.0 | 11.5 |
| 25 | 7.0 | 4.5 | 9.0 | 8.0 | 11.0 | 9.0 | 18.0 | 11.5 | 13.0 | 11.5 | 16.5 | 11.5 |
| 26 | 9.0 | 4.5 | 10.0 | 8.0 | 11.5 | 9.0 | 16.0 | 11.0 | 13.5 | 11.0 | 17.0 | 12.0 |
| 27 | 10.0 | 5.5 | 9.5 | 8.0 | 13.5 | 9.0 | 16.5 | 10.0 | 12.0 | 11.5 | 16.5 | 12.0 |
| 28 | 10.0 | 6.0 | 9.0 | 6.5 | 14.0 | 10.0 | 18.0 | 11.0 | 15.0 | 11.5 | 16.5 | 12.0 |
| 29 | 10.5 | 6.5 | 8.5 | 7.0 | 13.5 | 11.0 | 15.5 | 12.0 | 14.5 | 12.0 | 16.0 | 11.5 |
| 30 | 10.5 | 6.5 | 8.5 | 6.5 | 13.5 | 11.0 | 17.0 | 11.5 | 15.5 | 12.0 | 13.5 | 11.0 |
| 31 | --- | --- | 8.0 | 6.5 | --- | --- | 18.0 | 13.0 | 15.5 | 11.5 | --- | --- |
| MONTH | 10.5 | 3.0 | 12.0 | 5.5 | 14.5 | 6.0 | 18.5 | 10.0 | 18.5 | 10.5 | 17.0 | 10.0 |
| YEAR | 18.5 | 0.0 | | | | | | | | | | |

## 12197040 TANK CREEK NEAR LYMAN, WA

LOCATION.--Lat 48°31'38", long 122°06'19", in NW¼NE¼ sec.13, T.35 N., R.5 E., Skagit County, Hydrologic Unit 17110007, on right bank 350 ft (107 m) upstream from State Highway 20 crossing, and 2 mi (3.2 km) west of Lyman.

DRAINAGE AREA.--About 2.5 mi$^2$ (6.5 km$^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 100 ft (30 m) from topographic map.

REMARKS.--Water discharge records good. No known regulation or diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86 ft$^3$/s (2.44 m$^3$/s) Dec. 2, 1975, gage height, 4.26 ft (1.298 m); no flow for several days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 86 ft$^3$/s (2.44 m$^3$/s) Dec. 2, gage height, 4.26 ft (1.298 m); maximum gage height, 4.51 ft (1.375 m) Dec. 2 (backwater from landslide); no flow part of each day Oct. 1-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .02 | 1.4 | 37 | 6.4 | 3.8 | 5.0 | 6.0 | 1.6 | 1.8 | .38 | .16 | .18 |
| 2 | .01 | 2.3 | 65 | 5.4 | 3.6 | 4.3 | 4.8 | 2.2 | 1.0 | .33 | .16 | .18 |
| 3 | .05 | 2.5 | 38 | 5.4 | 3.4 | 3.8 | 4.3 | 1.8 | .78 | .33 | .18 | .16 |
| 4 | .21 | 1.5 | 24 | 12 | 2.9 | 3.4 | 3.8 | 1.8 | .68 | .59 | .20 | .16 |
| 5 | 1.5 | 1.8 | 12 | 12 | 2.7 | 3.4 | 3.6 | 2.2 | .59 | .38 | .18 | 1.4 |
| 6 | .69 | 2.2 | 8.9 | 8.8 | 2.7 | 3.1 | 3.4 | 1.6 | .51 | .33 | .18 | .78 |
| 7 | .31 | 2.7 | 9.7 | 6.6 | 2.7 | 3.1 | 3.1 | 1.4 | .51 | .33 | .26 | .38 |
| 8 | .24 | 3.9 | 23 | 6.6 | 2.7 | 2.9 | 4.0 | 1.3 | .51 | .38 | .44 | .29 |
| 9 | .21 | 8.2 | 20 | 6.0 | 3.1 | 2.7 | 3.4 | 1.1 | .44 | .33 | .26 | .23 |
| 10 | .20 | 3.6 | 13 | 6.0 | 4.3 | 4.0 | 2.9 | 1.6 | .44 | .29 | .20 | .20 |
| 11 | .17 | 2.2 | 9.4 | 6.0 | 6.8 | 3.4 | 3.4 | 1.4 | .44 | .29 | .18 | .20 |
| 12 | .17 | 1.9 | 7.5 | 5.3 | 12 | 3.1 | 2.2 | 1.1 | .68 | .29 | .18 | .23 |
| 13 | .17 | 4.0 | 6.8 | 4.7 | 7.0 | 2.9 | 2.7 | 1.3 | .51 | .26 | .20 | .20 |
| 14 | .31 | 6.5 | 7.0 | 9.7 | 7.3 | 2.7 | 3.8 | 1.1 | .44 | .26 | .20 | .33 |
| 15 | .52 | 14 | 8.6 | 29 | 7.3 | 2.4 | 4.8 | .89 | 1.8 | .23 | .26 | .29 |
| 16 | .58 | 6.6 | 7.0 | 21 | 10 | 2.4 | 3.4 | .78 | 3.1 | .23 | .38 | .26 |
| 17 | 2.7 | 6.5 | 5.5 | 12 | 9.4 | 2.4 | 2.9 | .78 | .89 | .23 | .38 | .23 |
| 18 | 2.7 | 4.8 | 5.4 | 9.2 | 8.1 | 2.7 | 2.9 | .78 | .51 | .23 | .23 | .23 |
| 19 | 2.6 | 3.9 | 5.4 | 7.3 | 6.8 | 2.4 | 3.1 | .78 | .59 | .20 | .51 | .23 |
| 20 | 1.4 | 2.8 | 4.9 | 6.3 | 6.3 | 3.8 | 7.3 | .68 | .44 | .20 | 1.0 | .20 |
| 21 | .80 | 1.8 | 4.4 | 5.5 | 5.3 | 3.4 | 4.5 | .68 | .38 | .20 | .33 | .20 |
| 22 | .70 | 2.0 | 4.4 | 7.0 | 4.5 | 5.8 | 3.6 | .68 | .51 | .23 | .26 | .23 |
| 23 | .57 | 20 | 6.0 | 5.8 | 5.0 | 4.8 | 3.4 | .68 | .44 | .20 | .23 | .23 |
| 24 | .45 | 31 | 11 | 5.0 | 4.8 | 6.5 | 3.6 | .78 | .44 | .18 | .23 | .19 |
| 25 | 1.4 | 14 | 10 | 4.8 | 4.8 | 7.5 | 3.4 | 1.0 | .44 | .18 | .26 | .16 |
| 26 | 1.3 | 22 | 16 | 5.0 | 4.8 | 5.8 | 2.9 | 1.0 | .38 | .16 | .26 | .14 |
| 27 | .97 | 11 | 12 | 8.4 | 4.8 | 5.3 | 2.4 | 1.0 | .33 | .16 | .29 | .13 |
| 28 | .93 | 7.8 | 10 | 5.5 | 6.0 | 8.1 | 2.2 | 1.0 | .29 | .16 | .26 | .13 |
| 29 | 2.4 | 6.0 | 18 | 5.0 | 5.8 | 5.8 | 1.8 | 1.0 | .29 | .16 | .20 | .13 |
| 30 | 2.7 | 13 | 15 | 4.3 | --- | 6.0 | 1.6 | .89 | .29 | .16 | .18 | .14 |
| 31 | 1.7 | --- | 9.5 | 4.0 | --- | 9.7 | --- | .89 | --- | .14 | .18 | --- |
| TOTAL | 28.68 | 211.9 | 434.4 | 246.0 | 158.7 | 132.6 | 105.2 | 35.79 | 20.45 | 8.02 | 8.42 | 8.04 |
| MEAN | .93 | 7.06 | 14.0 | 7.94 | 5.47 | 4.28 | 3.51 | 1.15 | .68 | .26 | .27 | .27 |
| MAX | 2.7 | 31 | 65 | 29 | 12 | 9.7 | 7.3 | 2.2 | 3.1 | .59 | 1.0 | 1.4 |
| MIN | .01 | 1.4 | 4.4 | 4.0 | 2.7 | 2.4 | 1.6 | .68 | .29 | .14 | .16 | .13 |
| AC-FT | 57 | 420 | 862 | 488 | 315 | 263 | 209 | 71 | 41 | 16 | 17 | 16 |

CAL YR 1975 TOTAL 1360.58 MEAN 3.73 MAX 65 MIN 0 AC-FT 2700
WTR YR 1976 TOTAL 1398.20 MEAN 3.82 MAX 65 MIN .01 AC-FT 2770

## 12197040 TANK CREEK NEAR LYMAN, WA--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: April 1974 to current year.

INSTRUMENTATION.--Temperature recorder since Apr. 24, 1974.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 21.5°C Sept. 2, 1974; minimum, 0.5°C Feb. 8, Nov. 30, 1975, Feb. 5, 6, Mar. 3, 4, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 18.0°C July 24; minimum, 0.5°C Nov. 30, Feb. 5, 6, Mar. 3, 4.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 14.0 | 12.0 | 12.5 | 9.0 | 8.5 | 9.0 | 4.5 | 3.0 | 4.0 | 3.0 | 2.5 | 2.5 |
| 2 | 13.5 | 12.0 | 13.0 | 9.0 | 8.5 | 9.0 | 6.5 | 4.5 | 6.0 | 3.0 | 2.5 | 3.0 |
| 3 | 14.0 | 13.0 | 13.5 | 12.0 | 9.0 | 10.5 | 7.5 | 6.5 | 7.0 | 4.0 | 3.0 | 3.5 |
| 4 | 12.5 | 11.5 | 12.0 | 12.0 | 11.5 | 12.0 | 7.5 | 5.0 | 6.5 | 4.5 | 4.0 | 4.0 |
| 5 | 12.0 | 10.5 | 11.0 | 11.5 | 9.0 | 10.5 | 5.0 | 4.5 | 5.0 | 5.0 | 4.5 | 4.5 |
| 6 | 11.5 | 9.5 | 10.0 | 9.0 | 8.0 | 8.5 | 4.0 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 |
| 7 | 9.5 | 8.0 | 8.5 | 8.5 | 8.0 | 8.0 | 5.5 | 4.0 | 4.5 | 4.5 | 4.0 | 4.0 |
| 8 | 11.5 | 9.0 | 10.0 | 8.0 | 6.5 | 7.5 | 6.5 | 5.5 | 6.0 | 5.0 | 4.0 | 4.5 |
| 9 | 11.0 | 10.5 | 10.5 | 6.5 | 6.0 | 6.5 | 7.0 | 6.5 | 7.0 | 5.0 | 4.5 | 5.0 |
| 10 | 12.5 | 11.0 | 11.5 | 6.5 | 6.0 | 6.5 | 6.5 | 4.5 | 5.5 | 4.5 | 4.5 | 4.5 |
| 11 | 10.5 | 8.5 | 9.5 | 6.5 | 6.5 | 6.5 | 4.5 | 4.0 | 4.5 | 5.0 | 4.5 | 4.5 |
| 12 | 10.5 | 9.5 | 9.5 | 7.5 | 6.5 | 7.0 | 4.0 | 3.0 | 3.5 | 4.5 | 3.5 | 4.0 |
| 13 | 11.5 | 10.0 | 10.5 | 7.5 | 7.0 | 7.0 | 3.5 | 3.0 | 3.0 | 3.5 | 3.0 | 3.5 |
| 14 | 11.0 | 10.5 | 10.5 | 9.0 | 7.5 | 8.5 | 3.5 | 3.0 | 3.0 | 4.5 | 3.5 | 4.0 |
| 15 | 11.5 | 10.0 | 10.5 | 9.0 | 7.5 | 8.0 | 4.5 | 3.5 | 3.5 | 5.5 | 4.5 | 5.0 |
| 16 | 11.0 | 9.5 | 10.0 | 7.5 | 6.0 | 7.0 | 3.0 | 2.0 | 3.0 | 7.0 | 5.5 | 6.0 |
| 17 | 11.5 | 11.0 | 11.0 | 6.0 | 5.5 | 6.0 | 3.0 | 2.0 | 2.5 | 5.5 | 5.0 | 5.5 |
| 18 | 11.0 | 10.0 | 10.5 | 5.0 | 4.5 | 5.0 | 3.0 | 2.0 | 2.5 | 6.5 | 4.5 | 5.5 |
| 19 | 10.0 | 9.5 | 9.5 | 5.5 | 4.5 | 5.0 | 3.0 | 2.0 | 2.5 | 4.5 | 3.5 | 4.0 |
| 20 | 9.5 | 9.0 | 9.5 | 5.0 | 4.5 | 5.0 | 3.0 | 2.0 | 2.5 | 4.5 | 3.0 | 3.5 |
| 21 | 9.5 | 8.5 | 9.0 | 6.0 | 4.5 | 5.5 | 4.0 | 2.5 | 3.5 | 5.0 | 3.5 | 4.5 |
| 22 | 8.5 | 8.0 | 8.0 | 6.5 | 6.0 | 6.0 | 4.5 | 4.0 | 4.5 | 5.0 | 4.5 | 5.0 |
| 23 | 8.0 | 6.5 | 7.5 | 6.5 | 6.0 | 6.0 | 5.0 | 4.5 | 5.0 | 5.5 | 4.0 | 4.5 |
| 24 | 7.5 | 6.5 | 7.0 | 8.0 | 6.5 | 7.5 | 6.0 | 5.5 | 6.0 | 4.0 | 3.5 | 3.5 |
| 25 | 7.5 | 6.5 | 7.0 | 7.5 | 7.0 | 7.5 | 5.5 | 5.5 | 5.5 | 5.0 | 4.0 | 4.5 |
| 26 | 7.0 | 7.0 | 7.0 | 7.0 | 6.5 | 7.0 | 7.0 | 5.5 | 6.5 | 6.0 | 4.5 | 5.0 |
| 27 | 7.5 | 7.0 | 7.5 | 6.5 | 5.0 | 5.5 | 5.5 | 5.0 | 5.5 | 6.5 | 6.0 | 6.0 |
| 28 | 7.5 | 7.5 | 7.5 | 4.5 | 3.0 | 3.5 | 5.5 | 5.0 | 5.0 | 7.5 | 6.0 | 6.5 |
| 29 | 8.0 | 7.0 | 7.5 | 3.0 | 2.0 | 2.5 | 7.5 | 5.5 | 6.5 | 7.5 | 6.5 | 7.0 |
| 30 | 8.5 | 8.0 | 8.0 | 3.0 | 0.5 | 1.5 | 6.0 | 4.0 | 5.5 | 7.0 | 5.0 | 6.5 |
| 31 | 8.5 | 8.0 | 8.0 | --- | --- | --- | 4.0 | 3.0 | 3.5 | 5.0 | 3.5 | 4.0 |
| MONTH | 14.0 | 6.5 | 9.5 | 12.0 | 0.5 | 7.0 | 7.5 | 2.0 | 4.5 | 7.5 | 2.5 | 4.5 |

## 12197040 TANK CREEK NEAR LYMAN, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 4.5 | 2.5 | 3.5 | 4.5 | 2.5 | 3.5 | 7.5 | 3.5 | 5.5 | 13.5 | 10.0 | 12.0 |
| 2 | 4.5 | 4.0 | 4.0 | 4.0 | 1.5 | 2.5 | 8.0 | 4.5 | 6.0 | 12.0 | 10.0 | 11.0 |
| 3 | 5.0 | 3.0 | 4.0 | 2.5 | 0.5 | 1.5 | 9.0 | 5.0 | 7.0 | 11.0 | 9.0 | 10.0 |
| 4 | 3.0 | 1.0 | 2.0 | 3.0 | 0.5 | 1.5 | 9.5 | 5.0 | 7.0 | 10.5 | 9.5 | 10.0 |
| 5 | 2.5 | 0.5 | 1.5 | 4.0 | 1.0 | 2.5 | 11.0 | 6.0 | 8.5 | 10.5 | 9.0 | 9.5 |
| 6 | 2.5 | 0.5 | 1.5 | 4.5 | 1.5 | 3.0 | 10.5 | 7.0 | 8.5 | 11.5 | 7.5 | 9.5 |
| 7 | 4.0 | 2.0 | 3.0 | 6.0 | 3.0 | 4.5 | 9.5 | 6.5 | 8.0 | 13.0 | 8.0 | 10.5 |
| 8 | 4.5 | 3.0 | 3.5 | 6.0 | 2.0 | 4.0 | 8.5 | 8.0 | 8.5 | 13.5 | 9.5 | 11.5 |
| 9 | 4.0 | 3.5 | 3.5 | 6.0 | 4.5 | 5.0 | 11.5 | 7.0 | 9.0 | 14.0 | 9.0 | 11.5 |
| 10 | 4.5 | 3.5 | 4.0 | 5.5 | 4.0 | 5.0 | 12.0 | 7.5 | 9.5 | 12.5 | 10.5 | 11.0 |
| 11 | 4.5 | 4.5 | 4.5 | 5.5 | 2.5 | 4.0 | 9.0 | 7.5 | 8.5 | 12.0 | 9.5 | 10.5 |
| 12 | 5.0 | 4.5 | 4.5 | 4.5 | 3.5 | 4.0 | 11.0 | 6.0 | 8.0 | 11.0 | 9.5 | 10.5 |
| 13 | 5.5 | 4.5 | 5.0 | 5.5 | 3.0 | 4.5 | 10.0 | 6.0 | 7.5 | 10.5 | 9.5 | 9.5 |
| 14 | 5.5 | 4.5 | 5.0 | 6.5 | 3.0 | 4.5 | 7.0 | 5.5 | 6.0 | 11.5 | 8.0 | 9.5 |
| 15 | 5.0 | 4.5 | 5.0 | 6.5 | 3.0 | 4.5 | 6.5 | 5.0 | 6.0 | 13.0 | 8.5 | 10.5 |
| 16 | 5.0 | 4.5 | 4.5 | 7.5 | 5.0 | 6.0 | 9.0 | 5.0 | 7.0 | 13.5 | 10.0 | 11.5 |
| 17 | 5.0 | 4.5 | 5.0 | 7.0 | 6.5 | 7.0 | 7.5 | 6.5 | 7.0 | 11.0 | 9.0 | 10.0 |
| 18 | 5.0 | 4.5 | 4.5 | 8.0 | 5.5 | 6.5 | 8.5 | 6.5 | 7.0 | 11.5 | 7.0 | 9.5 |
| 19 | 5.0 | 3.5 | 4.5 | 7.0 | 5.0 | 5.5 | 10.0 | 7.0 | 8.0 | 11.0 | 8.0 | 9.5 |
| 20 | 6.0 | 4.0 | 5.0 | 5.0 | 4.5 | 5.0 | 8.5 | 6.5 | 7.5 | 10.5 | 9.0 | 10.0 |
| 21 | 5.5 | 3.5 | 4.5 | 6.5 | 5.0 | 5.5 | 10.0 | 6.0 | 7.5 | 12.0 | 7.5 | 10.0 |
| 22 | 5.5 | 5.0 | 5.0 | 6.0 | 5.5 | 6.0 | 9.5 | 6.5 | 7.5 | 11.5 | 9.0 | 10.0 |
| 23 | 5.5 | 5.0 | 5.5 | 5.5 | 4.5 | 5.0 | 7.5 | 6.5 | 7.5 | 11.0 | 9.5 | 10.0 |
| 24 | 5.0 | 4.5 | 5.0 | 5.5 | 4.5 | 5.0 | 8.0 | 7.5 | 7.5 | 10.5 | 9.0 | 10.0 |
| 25 | 5.5 | 4.0 | 4.5 | 6.0 | 5.0 | 5.5 | 8.5 | 7.0 | 7.5 | 10.0 | 8.5 | 9.0 |
| 26 | 6.0 | 3.0 | 4.5 | 5.5 | 5.0 | 5.5 | 10.5 | 5.5 | 8.0 | 11.5 | 9.0 | 10.0 |
| 27 | 5.0 | 3.5 | 4.0 | 6.0 | 5.0 | 5.5 | 11.5 | 6.5 | 9.0 | 11.5 | 9.0 | 10.0 |
| 28 | 4.0 | 2.0 | 3.5 | 6.0 | 5.0 | 5.5 | 12.0 | 8.0 | 10.0 | 10.0 | 8.0 | 9.0 |
| 29 | 3.5 | 3.0 | 3.0 | 6.0 | 5.0 | 5.5 | 13.0 | 8.5 | 10.5 | 9.5 | 8.0 | 9.0 |
| 30 | --- | --- | --- | 6.5 | 6.0 | 6.0 | 13.0 | 9.0 | 11.0 | 9.5 | 8.0 | 8.5 |
| 31 | --- | --- | --- | 7.5 | 5.0 | 6.0 | --- | --- | --- | 9.0 | 7.5 | 8.5 |
| MONTH | 6.0 | 0.5 | 4.0 | 8.0 | 0.5 | 4.5 | 13.0 | 3.5 | 8.0 | 14.0 | 7.0 | 10.0 |

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 10.0 | 8.0 | 8.5 | 12.5 | 11.5 | 12.0 | 15.0 | 12.5 | 13.5 | 14.0 | 12.5 | 13.0 |
| 2 | 10.5 | 8.0 | 9.0 | 15.0 | 11.0 | 13.0 | 17.0 | 13.5 | 15.0 | 15.0 | 12.0 | 13.0 |
| 3 | 11.0 | 6.5 | 9.0 | 13.0 | 12.0 | 12.5 | 15.5 | 13.5 | 14.0 | 15.5 | 11.5 | 13.0 |
| 4 | 11.5 | 6.5 | 9.5 | 14.0 | 12.0 | 13.0 | 15.5 | 13.0 | 14.0 | 14.5 | 12.5 | 13.5 |
| 5 | 13.0 | 8.0 | 10.5 | 16.5 | 12.5 | 14.5 | 14.5 | 13.5 | 14.0 | 14.0 | 12.5 | 13.5 |
| 6 | 13.0 | 8.5 | 10.5 | 15.5 | 13.5 | 14.5 | 15.5 | 14.0 | 14.5 | 12.5 | 11.5 | 12.0 |
| 7 | 13.5 | 8.5 | 11.0 | 15.0 | 13.5 | 14.0 | 14.5 | 13.5 | 14.0 | 14.0 | 11.0 | 12.0 |
| 8 | 13.0 | 9.5 | 11.0 | 14.0 | 13.5 | 14.0 | 14.0 | 13.0 | 13.5 | 14.0 | 10.0 | 12.0 |
| 9 | 14.5 | 10.5 | 12.0 | 13.5 | 13.0 | 13.0 | 15.5 | 13.0 | 14.0 | 15.0 | 11.0 | 12.5 |
| 10 | 12.5 | 11.0 | 11.5 | 15.5 | 12.0 | 13.5 | 17.0 | 13.0 | 14.5 | 15.5 | 11.0 | 13.0 |
| 11 | 11.0 | 10.0 | 10.5 | 13.5 | 12.5 | 13.0 | 17.0 | 13.0 | 14.5 | 12.5 | 11.0 | 11.5 |
| 12 | 10.5 | 9.0 | 10.0 | 13.0 | 11.5 | 12.0 | 17.0 | 13.0 | 15.0 | 13.0 | 11.5 | 12.0 |
| 13 | 11.0 | 8.0 | 9.5 | 15.0 | 11.5 | 13.0 | 15.0 | 13.5 | 14.0 | 15.0 | 11.5 | 13.0 |
| 14 | 13.5 | 8.0 | 10.5 | 16.0 | 10.5 | 13.0 | 16.5 | 13.0 | 14.5 | 14.0 | 13.0 | 13.5 |
| 15 | 11.5 | 10.5 | 11.0 | 17.5 | 11.5 | 14.0 | 15.0 | 13.0 | 14.0 | 14.5 | 12.5 | 13.0 |
| 16 | 12.5 | 11.0 | 11.0 | 17.0 | 12.5 | 14.5 | 13.0 | 12.5 | 12.5 | 14.5 | 12.0 | 13.0 |
| 17 | 14.5 | 10.5 | 12.5 | 16.0 | 11.5 | 13.5 | 13.5 | 12.5 | 12.5 | 13.5 | 12.5 | 13.0 |
| 18 | 16.0 | 11.0 | 13.5 | 15.5 | 9.5 | 12.5 | 15.5 | 12.0 | 13.0 | 15.5 | 12.5 | 13.5 |
| 19 | 13.5 | 11.0 | 12.0 | 15.5 | 10.0 | 13.0 | 13.0 | 12.5 | 12.5 | 16.0 | 12.0 | 13.5 |
| 20 | 14.0 | 9.5 | 11.5 | 15.5 | 13.0 | 14.0 | 14.0 | 12.5 | 13.0 | 17.0 | 12.5 | 14.0 |
| 21 | 13.5 | 10.0 | 11.5 | 14.0 | 12.0 | 13.0 | 15.0 | 11.0 | 13.0 | 15.0 | 13.0 | 13.5 |
| 22 | 12.5 | 11.0 | 11.5 | 12.5 | 11.5 | 12.0 | 13.0 | 11.5 | 12.5 | 14.0 | 13.5 | 13.5 |
| 23 | 11.5 | 10.5 | 11.0 | 17.5 | 12.0 | 14.5 | 14.0 | 12.5 | 13.0 | 14.0 | 13.5 | 13.5 |
| 24 | 12.0 | 10.5 | 11.0 | 18.0 | 14.0 | 15.5 | 15.5 | 13.5 | 14.0 | 15.5 | 12.0 | 13.5 |
| 25 | 12.0 | 9.5 | 10.5 | 17.5 | 12.5 | 14.5 | 14.0 | 12.5 | 13.0 | 16.0 | 11.5 | 13.5 |
| 26 | 12.5 | 9.0 | 10.5 | 15.5 | 12.0 | 13.5 | 14.0 | 11.5 | 12.5 | 16.0 | 12.5 | 14.0 |
| 27 | 14.5 | 9.0 | 11.5 | 16.0 | 10.5 | 13.0 | 13.0 | 12.5 | 12.5 | 15.5 | 12.5 | 14.0 |
| 28 | 15.0 | 11.0 | 13.0 | 17.0 | 11.5 | 14.0 | 17.0 | 13.0 | 14.5 | 16.0 | 12.5 | 14.0 |
| 29 | 14.0 | 12.0 | 13.0 | 15.5 | 13.0 | 14.0 | 15.5 | 12.5 | 14.0 | 15.0 | 12.0 | 13.5 |
| 30 | 14.0 | 11.5 | 12.5 | 16.5 | 12.0 | 14.0 | 16.5 | 12.5 | 14.5 | 12.5 | 11.0 | 12.0 |
| 31 | --- | --- | --- | 17.5 | 13.5 | 15.0 | 16.5 | 12.5 | 14.0 | --- | --- | --- |
| MONTH | 16.0 | 6.5 | 11.0 | 18.0 | 9.5 | 13.5 | 17.0 | 11.0 | 13.5 | 17.0 | 10.0 | 13.0 |
| YEAR | 18.0 | 0.5 | 8.5 | | | | | | | | | |

## 12197110 MINKLER CREEK NEAR LYMAN, WA

LOCATION.--Lat 48°31'15", long 122°06'00", in N½SE¼ sec.13, T.35 N., R.5 E., Skagit County, Hydrologic Unit 17110007, on left bank 1.8 mi (2.9 km) west of Lyman and 0.5 mi (0.8 km) upstream from mouth.

DRAINAGE AREA.--About 5 mi² (13.0 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 80 ft (24 m) from topographic map.

REMARKS.--Records poor. No known diversion above station. Flow affected by natural storage in Minkler Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge 150 ft³/s (4.25 m³/s) Dec. 2, 1975; maximum gage height, 10.94 ft (3.335 m) Dec. 4, 1975, backwater from Skagit River; no flow many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 150 ft³/s (4.25 m³/s) Dec. 2; maximum gage height, 10.94 ft (3.335 m) Dec. 4, backwater from Skagit River; no flow Oct. 1-16, Sept. 24-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 6.2 | 130 | 22 | 14 | 15 | 14 | 14 | 2.1 | .44 | .27 | .41 |
| 2 | 0 | 5.7 | 150 | 18 | 13 | 13 | 11 | 17 | 2.2 | .44 | .27 | .41 |
| 3 | 0 | 5.4 | 100 | 16 | 12 | 10 | 11 | 14 | 1.6 | .44 | .34 | .41 |
| 4 | 0 | 5.0 | 70 | 20 | 11 | 8.5 | 11 | 11 | 1.1 | .44 | .30 | .41 |
| 5 | 0 | 5.6 | 40 | 26 | 10 | 7.6 | 14 | 10 | .75 | .51 | .30 | 3.5 |
| 6 | 0 | 7.0 | 29 | 24 | 9.7 | 7.2 | 14 | 9.7 | .58 | .51 | .30 | 1.8 |
| 7 | 0 | 9.0 | 27 | 22 | 9.0 | 7.0 | 14 | 9.3 | .44 | .60 | .40 | 1.3 |
| 8 | 0 | 12 | 59 | 20 | 8.4 | 6.6 | 18 | 8.7 | .44 | .80 | .55 | .92 |
| 9 | 0 | 17 | 58 | 17 | 8.2 | 6.6 | 16 | 8.7 | .37 | .90 | .40 | .70 |
| 10 | 0 | 12 | 42 | 17 | 9.0 | 12 | 17 | 8.2 | .32 | .80 | .34 | .60 |
| 11 | 0 | 10 | 35 | 19 | 10 | 11 | 19 | 7.0 | .32 | .70 | .32 | .59 |
| 12 | 0 | 7.9 | 33 | 17 | 24 | 9.5 | 13 | 5.7 | .32 | .65 | .30 | .56 |
| 13 | 0 | 7.9 | 28 | 15 | 24 | 8.4 | 12 | 5.3 | .32 | .65 | .33 | .54 |
| 14 | 0 | 32 | 24 | 19 | 20 | 7.7 | 12 | 4.8 | .27 | .65 | .36 | .84 |
| 15 | 0 | 36 | 26 | 48 | 22 | 7.0 | 11 | 3.9 | .32 | .51 | .41 | .71 |
| 16 | 0 | 39 | 23 | 55 | 25 | 8.8 | 9.0 | 3.6 | 6.0 | .51 | .65 | .66 |
| 17 | .20 | 35 | 19 | 48 | 29 | 11 | 8.5 | 3.6 | 6.0 | .50 | .60 | .54 |
| 18 | .50 | 23 | 16 | 39 | 29 | 13 | 7.8 | 3.0 | 3.0 | .50 | .42 | .35 |
| 19 | .95 | 16 | 15 | 30 | 24 | 10 | 8.0 | 2.9 | 1.7 | .43 | 1.1 | .27 |
| 20 | .95 | 13 | 14 | 25 | 22 | 12 | 14 | 2.0 | 1.2 | .43 | 4.0 | .27 |
| 21 | 1.4 | 11 | 13 | 21 | 18 | 11 | 15 | 1.4 | .95 | .52 | 1.8 | .23 |
| 22 | 1.6 | 10 | 13 | 21 | 16 | 17 | 13 | 1.2 | .75 | .48 | 1.2 | .10 |
| 23 | 1.6 | 60 | 14 | 22 | 16 | 16 | 11 | 1.1 | .75 | .46 | .75 | .01 |
| 24 | 1.6 | 90 | 20 | 19 | 15 | 21 | 10 | .85 | .65 | .42 | .60 | 0 |
| 25 | 1.7 | 48 | 22 | 16 | 14 | 26 | 10 | 1.1 | .65 | .40 | .67 | 0 |
| 26 | 2.5 | 64 | 32 | 15 | 14 | 19 | 10 | 1.2 | .65 | .39 | .70 | 0 |
| 27 | 2.9 | 50 | 35 | 26 | 13 | 15 | 9.7 | 1.4 | .58 | .35 | .79 | 0 |
| 28 | 3.2 | 33 | 25 | 24 | 15 | 19 | 10 | 1.8 | .51 | .33 | .74 | 0 |
| 29 | 3.9 | 24 | 28 | 22 | 16 | 13 | 11 | 1.8 | .44 | .32 | .54 | 0 |
| 30 | 5.3 | 24 | 36 | 19 | --- | 14 | 12 | 1.7 | .44 | .27 | .47 | 0 |
| 31 | 6.2 | --- | 27 | 16 | --- | 20 | --- | 1.3 | --- | .26 | .43 | --- |
| TOTAL | 34.50 | 718.7 | 1203 | 738 | 470.3 | 382.9 | 366.0 | 167.25 | 35.72 | 15.61 | 20.65 | 16.13 |
| MEAN | 1.11 | 24.0 | 38.8 | 23.8 | 16.2 | 12.4 | 12.2 | 5.40 | 1.19 | .50 | .67 | .54 |
| MAX | 6.2 | 90 | 150 | 55 | 29 | 26 | 19 | 17 | 6.0 | .90 | 4.0 | 3.5 |
| MIN | 0 | 5.0 | 13 | 15 | 8.2 | 6.6 | 7.8 | .85 | .27 | .26 | .27 | 0 |
| AC-FT | 68 | 1430 | 2390 | 1460 | 933 | 759 | 726 | 332 | 71 | 31 | 41 | 32 |

CAL YR 1975 TOTAL 3717.93 MEAN 10.2 MAX 150 MIN 0 AC-FT 7370
WTR YR 1976 TOTAL 4168.76 MEAN 11.4 MAX 150 MIN 0 AC-FT 8270

## 12197110 MINKLER CREEK NEAR LYMAN, WA--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: May 1974 to current year.

INSTRUMENTATION.--Temperature recorder since May 17, 1974.

REMARKS.--Record during period of no flow Oct. 1-16 and Sept. 24-30, and when beaver dam pooled water (Sept. 14-23), causing nonrepresentative stream temperature to be recorded, were not published. Other interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 18.5°C June 13, 1974; minimum, 1.0°C Nov. 30, 1975.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 17.5°C May 9; minimum, 1.0°C Nov. 30.

TEMPERATURES (DEG. C) WATER YEAR ------------------------

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | --- | --- | --- | 8.5 | 8.0 | 8.0 | 3.5 | 1.5 | 2.5 | 3.5 | 2.5 | 3.0 |
| 2 | --- | --- | --- | 8.5 | 8.5 | 8.5 | 4.5 | 3.5 | 4.0 | 2.5 | 2.5 | 2.5 |
| 3 | --- | --- | --- | 10.5 | 8.5 | 9.0 | 5.5 | 4.5 | 5.0 | 3.0 | 2.5 | 3.0 |
| 4 | --- | --- | --- | 11.0 | 10.5 | 10.5 | 5.5 | 4.5 | 5.0 | 4.0 | 3.0 | 3.5 |
| 5 | --- | --- | --- | 11.0 | 10.5 | 11.0 | 4.5 | 3.5 | 4.0 | 4.5 | 4.0 | 4.0 |
| 6 | --- | --- | --- | 10.5 | 10.0 | 10.0 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 | 4.5 |
| 7 | --- | --- | --- | 10.0 | 9.5 | 9.5 | 4.5 | 3.5 | 4.0 | 4.5 | 4.0 | 4.0 |
| 8 | --- | --- | --- | 9.5 | 9.0 | 9.5 | 6.0 | 4.5 | 5.5 | 4.5 | 4.0 | 4.0 |
| 9 | --- | --- | --- | 9.0 | 8.5 | 8.5 | 6.5 | 6.0 | 6.5 | 5.0 | 4.5 | 4.5 |
| 10 | --- | --- | --- | 8.5 | 8.0 | 8.0 | 6.5 | 5.0 | 6.0 | 4.5 | 4.5 | 4.5 |
| 11 | --- | --- | --- | 8.5 | 8.0 | 8.5 | 5.0 | 4.0 | 4.5 | 4.5 | 4.5 | 4.5 |
| 12 | --- | --- | --- | 8.5 | 8.5 | 8.5 | 4.0 | 3.0 | 4.0 | 4.5 | 4.0 | 4.5 |
| 13 | --- | --- | --- | 9.0 | 8.5 | 8.5 | 3.0 | 2.5 | 2.5 | 4.0 | 3.5 | 3.5 |
| 14 | --- | --- | --- | 9.0 | 7.5 | 8.0 | 3.0 | 2.5 | 3.0 | 4.0 | 3.5 | 3.5 |
| 15 | --- | --- | --- | 8.0 | 7.5 | 8.0 | 3.5 | 2.5 | 3.0 | 5.0 | 4.0 | 4.5 |
| 16 | --- | --- | --- | 7.5 | 6.0 | 7.0 | 3.5 | 3.0 | 3.0 | 6.0 | 5.0 | 6.0 |
| 17 | 11.5 | 9.5 | 10.5 | 6.0 | 5.5 | 6.0 | 3.5 | 3.0 | 3.0 | 6.0 | 5.5 | 5.5 |
| 18 | 10.5 | 10.0 | 10.5 | 5.5 | 4.0 | 4.5 | 3.5 | 3.0 | 3.0 | 6.0 | 5.5 | 5.5 |
| 19 | 10.5 | 10.0 | 10.0 | 4.0 | 3.5 | 4.0 | 3.5 | 3.0 | 3.5 | 5.5 | 4.5 | 5.0 |
| 20 | 10.5 | 10.0 | 10.0 | 4.0 | 3.5 | 3.5 | 3.5 | 3.0 | 3.5 | 4.5 | 4.0 | 4.0 |
| 21 | 10.0 | 10.0 | 10.0 | 4.5 | 3.5 | 4.0 | 4.0 | 3.0 | 3.5 | 4.5 | 3.5 | 4.0 |
| 22 | 10.0 | 9.5 | 9.5 | 5.0 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 | 5.0 | 4.5 | 4.5 |
| 23 | 10.0 | 9.0 | 9.5 | 5.5 | 5.0 | 5.0 | 4.5 | 4.0 | 4.5 | 5.0 | 4.5 | 5.0 |
| 24 | 9.5 | 9.0 | 9.0 | 7.0 | 5.5 | 6.5 | 6.0 | 5.0 | 5.5 | 5.0 | 4.5 | 4.5 |
| 25 | 9.0 | 8.5 | 9.0 | 7.0 | 7.0 | 7.0 | 5.5 | 5.5 | 5.5 | 4.5 | 4.0 | 4.0 |
| 26 | 9.0 | 8.5 | 8.5 | 7.0 | 6.5 | 6.5 | 6.5 | 5.5 | 6.0 | 5.0 | 4.0 | 4.5 |
| 27 | 9.5 | 8.5 | 8.5 | 6.5 | 5.0 | 5.5 | 6.5 | 5.5 | 6.0 | 6.0 | 5.0 | 5.5 |
| 28 | 9.5 | 8.5 | 9.0 | 5.0 | 3.0 | 4.0 | 5.5 | 5.5 | 5.5 | 6.5 | 6.0 | 6.0 |
| 29 | 9.0 | 8.5 | 9.0 | 3.0 | 2.5 | 2.5 | 6.5 | 5.5 | 6.0 | 8.5 | 6.5 | 7.0 |
| 30 | 9.0 | 7.5 | 8.0 | 2.0 | 1.0 | 1.5 | 6.5 | 5.5 | 6.0 | 7.5 | 7.0 | 7.0 |
| 31 | 8.0 | 7.5 | 7.5 | --- | --- | --- | 5.0 | 3.5 | 4.5 | 7.0 | 5.5 | 6.0 |
| MONTH | --- | --- | --- | 11.0 | 1.0 | 7.0 | 6.5 | 1.5 | 4.5 | 8.5 | 2.5 | 4.5 |

12197110 MINKLER CREEK NEAR LYMAN, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DAY | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 5.5 | 5.0 | 5.0 | 4.5 | 3.5 | | 6.5 | 6.5 | | --- | --- | --- |
| 2 | 5.0 | 5.0 | 5.0 | 4.0 | 3.0 | | 8.0 | 6.0 | | --- | --- | --- |
| 3 | 5.0 | 4.0 | 4.5 | 4.0 | 3.0 | | 8.5 | 6.0 | | --- | --- | --- |
| 4 | 4.0 | 3.0 | 3.5 | 4.5 | 3.0 | | --- | --- | | --- | --- | --- |
| 5 | 3.5 | 3.0 | 3.0 | 4.5 | 3.0 | | --- | --- | | --- | --- | --- |
| 6 | 4.0 | 3.0 | 3.5 | 5.0 | 3.0 | | --- | --- | | --- | --- | --- |
| 7 | 4.5 | 3.5 | 4.0 | 5.5 | 3.5 | | --- | --- | | 15.5 | 12.5 | 14.0 |
| 8 | 4.0 | 3.5 | 4.0 | 6.0 | 4.5 | | --- | --- | | 16.5 | 14.0 | 15.5 |
| 9 | 4.0 | 3.5 | 3.5 | 6.5 | 5.0 | | --- | --- | | 17.5 | 14.0 | 15.5 |
| 10 | 4.0 | 3.5 | 4.0 | 7.0 | 6.0 | | --- | --- | | 16.5 | 14.5 | 15.5 |
| 11 | 4.5 | 4.0 | 4.5 | 6.5 | 6.5 | | --- | --- | | 16.0 | 13.5 | 14.5 |
| 12 | 5.0 | 4.5 | 4.5 | 5.5 | 5.5 | | --- | --- | | 15.0 | 13.5 | 14.5 |
| 13 | 5.5 | 4.5 | 5.0 | 6.0 | 5.0 | | --- | --- | | 14.0 | 13.0 | 13.5 |
| 14 | 5.5 | 5.0 | 5.0 | 7.0 | 5.0 | | --- | --- | | 14.5 | 12.0 | 13.0 |
| 15 | 5.5 | 5.0 | 5.0 | 7.5 | 5.0 | | --- | --- | | 15.5 | 13.0 | 14.5 |
| 16 | --- | --- | --- | 7.5 | 6.5 | | --- | --- | | 16.0 | 14.5 | 15.0 |
| 17 | --- | --- | --- | 8.0 | 7.5 | | --- | --- | | 15.0 | 14.5 | 15.0 |
| 18 | 6.0 | 4.5 | --- | 8.5 | 7.5 | | --- | --- | | 15.0 | 13.5 | 14.5 |
| 19 | 5.0 | 4.5 | --- | 8.5 | 7.0 | | --- | --- | | 15.5 | 14.0 | 14.5 |
| 20 | 5.5 | 4.5 | --- | 8.5 | 7.0 | | --- | --- | | 15.0 | 14.0 | 14.5 |
| 21 | 5.0 | 4.5 | --- | 7.0 | 6.5 | | --- | --- | | 15.0 | 13.5 | 14.0 |
| 22 | 5.0 | 4.5 | --- | 7.0 | 6.5 | | --- | --- | | 14.5 | 13.5 | 14.0 |
| 23 | 5.5 | 5.0 | --- | 7.0 | 6.0 | | --- | --- | | 14.0 | 13.0 | 13.5 |
| 24 | 5.5 | 5.0 | --- | 6.5 | 5.5 | | --- | --- | | 13.0 | 12.5 | 13.0 |
| 25 | 5.5 | 4.5 | --- | 7.0 | 5.5 | | --- | --- | | 13.0 | 12.0 | 12.5 |
| 26 | 5.0 | 4.5 | --- | 7.0 | 5.5 | | --- | --- | | 13.0 | 12.0 | 12.5 |
| 27 | 5.5 | 4.5 | --- | 6.5 | 5.5 | | --- | --- | | 13.0 | 12.5 | 13.0 |
| 28 | 5.0 | 4.0 | --- | 7.0 | 5.5 | | --- | --- | | 13.0 | 12.5 | 12.5 |
| 29 | 4.5 | 3.5 | --- | 7.0 | 5.5 | | --- | --- | | 13.0 | 12.5 | 12.5 |
| 30 | --- | --- | --- | 7.0 | 6.0 | | --- | --- | | 12.5 | 12.0 | 12.5 |
| 31 | --- | --- | --- | 7.0 | 6.0 | | --- | --- | | 12.0 | 11.5 | 12.0 |
| MONTH | 6.0 | 3.0 | --- | 8.5 | 3.0 | | --- | --- | | 17.5 | 11.5 | 14.0 |

| DAY | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 13.0 | 12.0 | 12.5 | 9.5 | 9.0 | 9.0 | 10.0 | 9.0 | 9.5 | 10.5 | 10.0 | 10.0 |
| 2 | 13.5 | 12.5 | 13.0 | 9.5 | 9.0 | 9.0 | 10.0 | 9.0 | 9.5 | 10.0 | 10.0 | 10.0 |
| 3 | 13.5 | 12.0 | 12.5 | 9.0 | 9.0 | 9.0 | 10.0 | 9.0 | 9.5 | 10.5 | 10.0 | 10.0 |
| 4 | 14.0 | 12.0 | 13.0 | 9.5 | 9.0 | 9.5 | 9.5 | 9.0 | 9.0 | 10.5 | 10.0 | 10.5 |
| 5 | 14.5 | 12.0 | 13.0 | 10.0 | 4.5 | 10.0 | 10.0 | 9.0 | 9.5 | 11.0 | 10.0 | 10.5 |
| 6 | 14.0 | 12.5 | 13.0 | 10.0 | 9.5 | 9.5 | 10.0 | 9.0 | 9.5 | 11.0 | 10.5 | 10.5 |
| 7 | 13.0 | 12.0 | 12.5 | 10.0 | 9.0 | 9.5 | 10.0 | 9.0 | 9.5 | 11.0 | 10.5 | 10.5 |
| 8 | 12.0 | 11.0 | 11.5 | 10.0 | 9.0 | 9.5 | 9.5 | 9.0 | 9.5 | 10.5 | 10.5 | 10.5 |
| 9 | 11.5 | 10.5 | 11.0 | 10.0 | 9.0 | 9.5 | 9.5 | 9.0 | 9.5 | 10.5 | 10.0 | 10.5 |
| 10 | 10.5 | 10.0 | 10.0 | 10.0 | 9.0 | 9.5 | 10.0 | 9.0 | 9.5 | 10.5 | 10.5 | 10.5 |
| 11 | 10.0 | 10.0 | 10.0 | 9.5 | 9.5 | 9.5 | 10.5 | 9.0 | 10.0 | 10.5 | 10.0 | 10.0 |
| 12 | 10.0 | 9.5 | 10.0 | 9.5 | 9.0 | 9.5 | 10.5 | 9.5 | 10.0 | 10.5 | 10.5 | 10.5 |
| 13 | 10.0 | 9.5 | 9.5 | 9.0 | 9.0 | 9.0 | 10.0 | 9.5 | 9.5 | 10.5 | 10.5 | 10.5 |
| 14 | 11.0 | 9.5 | 10.5 | 9.0 | 9.0 | 9.0 | 10.5 | 9.5 | 10.0 | --- | --- | --- |
| 15 | 13.5 | 10.5 | 11.5 | 9.5 | 9.0 | 9.5 | 10.5 | 9.5 | 10.0 | --- | --- | --- |
| 16 | 16.5 | 14.0 | 16.0 | 10.5 | 9.0 | 9.5 | 10.5 | 10.0 | 10.5 | --- | --- | --- |
| 17 | 17.0 | 15.0 | 16.0 | 10.0 | 9.0 | 9.5 | 10.5 | 9.5 | 10.0 | --- | --- | --- |
| 18 | 16.5 | 15.5 | 16.0 | 9.5 | 9.0 | 9.5 | 10.0 | 9.5 | 9.5 | --- | --- | --- |
| 19 | 16.0 | 15.0 | 15.5 | 10.0 | 9.5 | 9.5 | 10.0 | 9.5 | 10.0 | --- | --- | --- |
| 20 | 15.0 | 13.5 | 14.5 | 10.0 | 9.5 | 9.5 | 10.5 | 9.5 | 10.0 | --- | --- | --- |
| 21 | 14.0 | 12.5 | 13.0 | 10.0 | 9.0 | 9.5 | 11.0 | 10.0 | 10.0 | --- | --- | --- |
| 22 | 12.5 | 12.0 | 12.5 | 10.0 | 9.0 | 9.5 | 11.0 | 10.0 | 10.5 | --- | --- | --- |
| 23 | 11.5 | 10.5 | 10.5 | 10.0 | 9.0 | 9.5 | 10.5 | 9.5 | 10.0 | --- | --- | --- |
| 24 | 10.5 | 10.0 | 10.0 | 10.0 | 9.0 | 9.5 | 10.0 | 9.5 | 10.0 | --- | --- | --- |
| 25 | 10.5 | 9.5 | 10.5 | 10.0 | 9.0 | 9.5 | 10.0 | 9.5 | 9.5 | --- | --- | --- |
| 26 | 10.5 | 10.0 | 10.0 | 10.0 | 9.0 | 9.5 | 10.5 | 10.0 | 10.0 | --- | --- | --- |
| 27 | 10.0 | 9.5 | 9.5 | 10.0 | 9.0 | 9.5 | 10.5 | 10.0 | 10.0 | --- | --- | --- |
| 28 | 9.5 | 9.5 | 9.5 | 10.0 | 9.0 | 9.5 | 10.5 | 10.0 | 10.0 | --- | --- | --- |
| 29 | 9.5 | 9.5 | 9.5 | 10.0 | 9.0 | 9.5 | 10.5 | 10.0 | 10.0 | --- | --- | --- |
| 30 | 9.5 | 9.0 | 9.0 | 9.5 | 9.0 | 9.0 | 10.0 | 10.0 | 10.0 | --- | --- | --- |
| 31 | --- | --- | --- | 9.5 | 9.0 | 9.0 | 10.5 | 10.0 | 10.0 | --- | --- | --- |
| MONTH | 17.0 | 9.0 | 12.0 | 10.5 | 9.0 | 9.5 | 11.0 | 9.0 | 10.0 | --- | --- | --- |
| YEAR | 17.5 | 1.0 | 8.5 | | | | | | | | | |

## 12197680 BLACK CREEK NEAR MINKLER, WA

LOCATION.--Lat 48°32'34", long 122°06'50", in NW¼NW¼ sec.12, T.35 N., R.5 E., Skagit County, Hydrologic Unit 17110007, on right bank 0.6 mi (1.0 km) upstream from former station "Black Creek near Lyman 12197690," 2.8 mi (4.5 km) northwest of Lyman, and 1.1 mi (1.8 km) above mouth.

DRAINAGE AREA.--About 0.5 $mi^2$ (1.3 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 500 ft (152 m) from topographic map.

REMARKS.--Water discharge records good. No known diversion or regulation above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 107 $ft^3/s$ (3.03 $m^3/s$) Nov. 24, 1975, gage height, 3.05 ft (0.930 m); minimum, 0.10 $ft^3/s$ (0.003 $m^3/s$) Aug. 16, Oct. 2, 1975, gage height, 1.16 ft (0.354 m).

EXTREMES FOR CURRENT YEAR: Maximum discharge, 107 $ft^3/s$ (3.03 $m^3/s$) Nov. 24, gage height, 3.05 ft (0.930 m); minimum, 0.10 $ft^3/s$ (0.003 $m^3/s$) Oct. 2, gage height, 1.16 ft (0.354 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .11 | 5.9 | 48 | 3.6 | 2.8 | 1.5 | 3.4 | 13 | 3.0 | .86 | .19 | .63 |
| 2 | .11 | 8.0 | 73 | 2.8 | 2.4 | 1.4 | 2.8 | 14 | 2.5 | .78 | .19 | .62 |
| 3 | .13 | 8.3 | 54 | 2.7 | 2.2 | 1.7 | 2.9 | 5.5 | 1.9 | .70 | .22 | .60 |
| 4 | .19 | 5.6 | 27 | 6.3 | 1.8 | 1.3 | 3.8 | 4.8 | 1.5 | 1.6 | .22 | .57 |
| 5 | 1.9 | 6.1 | 9.1 | 8.0 | 1.6 | 1.1 | 6.9 | 6.7 | 1.4 | 1.2 | .22 | 6.8 |
| 6 | 1.8 | 6.4 | 6.1 | 4.8 | 1.5 | 1.1 | 9.0 | 5.3 | 1.2 | .86 | .22 | 4.0 |
| 7 | 1.3 | 6.1 | 4.9 | 3.9 | 1.4 | 1.2 | 6.8 | 6.4 | 1.1 | .78 | .37 | 2.4 |
| 8 | 1.1 | 5.9 | 24 | 3.9 | 1.3 | 1.3 | 12 | 7.1 | 1.0 | .90 | .64 | 1.6 |
| 9 | 1.1 | 5.7 | 24 | 3.3 | 1.3 | 1.3 | 10 | 6.5 | .95 | .77 | .49 | 1.1 |
| 10 | 1.6 | 4.8 | 14 | 3.1 | 1.4 | 2.7 | 11 | 6.3 | .86 | .66 | .38 | .86 |
| 11 | 1.3 | 4.2 | 7.1 | 3.2 | 2.4 | 2.3 | 11 | 5.4 | .86 | .61 | .32 | .70 |
| 12 | 1.1 | 4.3 | 4.8 | 2.8 | 6.8 | 1.9 | 5.9 | 3.3 | 1.1 | .56 | .29 | .70 |
| 13 | 1.0 | 9.1 | 3.6 | 2.5 | 4.0 | 1.7 | 4.5 | 3.0 | .95 | .51 | .30 | .63 |
| 14 | 1.3 | 15 | 3.0 | 7.7 | 3.4 | 1.6 | 3.8 | 2.5 | .86 | .48 | .33 | .95 |
| 15 | 3.3 | 17 | 3.1 | 42 | 3.1 | 1.6 | 3.0 | 2.6 | 4.0 | .45 | .44 | .78 |
| 16 | 2.8 | 8.9 | 2.6 | 30 | 6.2 | 1.8 | 2.5 | 3.2 | 12 | .41 | 1.2 | .70 |
| 17 | 6.1 | 6.7 | 2.3 | 17 | 5.8 | 3.4 | 2.3 | 2.5 | 3.4 | .39 | 1.5 | .56 |
| 18 | 9.1 | 5.4 | 2.3 | 11 | 4.4 | 4.0 | 2.2 | 1.9 | 2.2 | .37 | .81 | .56 |
| 19 | 8.2 | 4.7 | 2.4 | 6.1 | 3.4 | 2.8 | 2.6 | 1.7 | 1.9 | .35 | 4.5 | .50 |
| 20 | 5.8 | 4.2 | 2.4 | 4.5 | 2.8 | 2.6 | 7.0 | 1.6 | 1.5 | .37 | 10 | .39 |
| 21 | 4.1 | 3.9 | 2.2 | 3.7 | 2.5 | 2.3 | 4.2 | 1.6 | 1.2 | .36 | 2.4 | .34 |
| 22 | 3.5 | 3.9 | 2.1 | 4.6 | 2.3 | 3.1 | 3.3 | 1.6 | 1.4 | .36 | 1.5 | .34 |
| 23 | 3.3 | 25 | 3.2 | 4.2 | 2.6 | 2.7 | 2.9 | 1.4 | 1.2 | .32 | 1.2 | .34 |
| 24 | 2.9 | 53 | 12 | 3.0 | 2.3 | 3.5 | 3.4 | 1.7 | 1.1 | .30 | 1.1 | .34 |
| 25 | 4.3 | 24 | 7.2 | 2.6 | 2.2 | 4.6 | 3.2 | 2.3 | 1.1 | .27 | 1.3 | .34 |
| 26 | 4.8 | 34 | 19 | 3.0 | 2.0 | 3.3 | 3.4 | 2.3 | 1.0 | .26 | 1.3 | .30 |
| 27 | 4.1 | 19 | 8.1 | 14 | 1.9 | 2.8 | 5.7 | 2.8 | .86 | .25 | 1.7 | .30 |
| 28 | 4.3 | 13 | 6.1 | 5.9 | 1.8 | 2.9 | 7.2 | 2.5 | .78 | .22 | 1.6 | .34 |
| 29 | 8.5 | 11 | 17 | 5.9 | 1.7 | 2.5 | 8.7 | 2.3 | .70 | .22 | 1.1 | .39 |
| 30 | 11 | 17 | 12 | 4.1 | --- | 3.3 | 11 | 1.7 | .70 | .22 | .86 | .39 |
| 31 | 7.1 | --- | 5.4 | 3.2 | --- | 4.6 | --- | 1.6 | --- | .22 | .73 | --- |
| TOTAL | 107.24 | 346.1 | 412.0 | 231.4 | 79.3 | 73.9 | 166.4 | 125.0 | 54.22 | 16.61 | 37.62 | 29.07 |
| MEAN | 3.46 | 11.5 | 13.3 | 7.46 | 2.73 | 2.38 | 5.55 | 4.03 | 1.81 | .54 | 1.21 | .97 |
| MAX | 11 | 53 | 73 | 42 | 6.8 | 4.6 | 12 | 14 | 12 | 1.6 | 10 | 6.8 |
| MIN | .11 | 3.9 | 2.1 | 2.5 | 1.3 | 1.1 | 2.2 | 1.4 | .70 | .22 | .19 | .30 |
| AC-FT | 213 | 686 | 817 | 459 | 157 | 147 | 330 | 248 | 108 | 33 | 75 | 58 |

WTR YR 1976 TOTAL 1678.86 MEAN 4.59 MAX 73 MIN .11 AC-FT 3330

## 12197680 BLACK CREEK NEAR MINKLER, WA--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: May 1975 to current year.

INSTRUMENTATION.--Temperature recorder installed May 16, 1975.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum recorded, 17.5°C Sept. 18, 1976; minimum recorded, 0.0°C Feb. 5, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 17.5°C Sept. 18; minimum recorded, 0.0°C Feb. 5.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 14.0 | 12.0 | 13.0 | 7.0 | 7.0 | 7.0 | 4.5 | 2.5 | 4.0 | 2.0 | 1.5 | 2.0 |
| 2 | 13.5 | 12.0 | 13.0 | 7.5 | 7.0 | 7.0 | 6.0 | 4.5 | 5.5 | 2.5 | 1.5 | 2.0 |
| 3 | 13.0 | 11.5 | 12.0 | 9.5 | 7.5 | 8.5 | 7.0 | 6.0 | 6.5 | 3.5 | 2.5 | 3.0 |
| 4 | 11.5 | 10.5 | 11.0 | 10.0 | 9.5 | 9.5 | 6.0 | 3.5 | 4.5 | 4.5 | 3.5 | 4.0 |
| 5 | 10.5 | 9.0 | 10.0 | 9.5 | 6.5 | 8.5 | 4.0 | 3.0 | 3.5 | 4.0 | 3.0 | 3.5 |
| 6 | 9.5 | 8.0 | 8.5 | 6.5 | 6.0 | 6.0 | 3.5 | 2.5 | 3.0 | 3.5 | 3.0 | 3.0 |
| 7 | 9.0 | 8.0 | 8.5 | 6.0 | 5.0 | 5.5 | 5.0 | 4.0 | 4.5 | 3.5 | 3.0 | 3.5 |
| 8 | 9.5 | 8.5 | 9.0 | 5.0 | 3.0 | 4.5 | 5.5 | 5.0 | 5.0 | 4.0 | 3.5 | 4.0 |
| 9 | 9.5 | 9.5 | 9.5 | 4.0 | 3.0 | 3.5 | 6.0 | 5.0 | 5.5 | 4.0 | 3.5 | 4.0 |
| 10 | 10.5 | 9.5 | 10.0 | 4.0 | 3.5 | 4.0 | 5.0 | 3.0 | 4.0 | 4.0 | 3.5 | 3.5 |
| 11 | 9.5 | 8.5 | 9.0 | 5.0 | 4.0 | 4.5 | 3.0 | 2.0 | 3.0 | 4.0 | 3.0 | 3.5 |
| 12 | 9.5 | 9.0 | 9.5 | 6.0 | 5.0 | 5.0 | 2.0 | 1.0 | 2.0 | 3.0 | 2.5 | 3.0 |
| 13 | 10.0 | 9.0 | 9.5 | 6.0 | 5.5 | 6.0 | 2.5 | 1.0 | 2.0 | 3.0 | 2.0 | 2.5 |
| 14 | 9.5 | 9.0 | 9.5 | 7.0 | 6.0 | 6.5 | 2.5 | 1.5 | 2.0 | 4.0 | 3.0 | 3.5 |
| 15 | 9.0 | 8.5 | 9.0 | 7.5 | 4.5 | 5.5 | 4.0 | 2.5 | 3.0 | 4.5 | 3.5 | 4.0 |
| 16 | 10.0 | 8.0 | 9.0 | 5.0 | 3.5 | 4.5 | 2.5 | 2.0 | 2.5 | 6.0 | 4.5 | 5.0 |
| 17 | 10.0 | 8.5 | 10.0 | 4.0 | 3.0 | 3.5 | 3.0 | 2.0 | 2.5 | 5.5 | 5.0 | 5.0 |
| 18 | 8.5 | 8.0 | 8.0 | 3.5 | 2.5 | 3.0 | 3.5 | 2.5 | 3.0 | 5.0 | 4.0 | 4.5 |
| 19 | 8.5 | 7.5 | 8.0 | 4.0 | 3.0 | 3.5 | 4.0 | 3.0 | 3.5 | 5.0 | 3.5 | 4.0 |
| 20 | 8.0 | 7.5 | 7.5 | 4.0 | 3.0 | 3.5 | 4.5 | 3.5 | 4.0 | 5.5 | 4.5 | 5.0 |
| 21 | 7.0 | 6.5 | 7.0 | 5.0 | 3.5 | 4.5 | 5.5 | 4.0 | 4.5 | 5.5 | 4.5 | 5.0 |
| 22 | 6.5 | 5.5 | 6.0 | 5.0 | 4.5 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 4.0 | 4.5 |
| 23 | 6.0 | 4.5 | 5.5 | 5.5 | 4.5 | 5.0 | 5.5 | 4.5 | 5.0 | 4.0 | 2.5 | 3.5 |
| 24 | 6.0 | 5.0 | 5.5 | 6.0 | 5.5 | 6.0 | 6.0 | 4.5 | 5.0 | 2.5 | 2.5 | 2.5 |
| 25 | 5.5 | 5.5 | 5.5 | 6.0 | 5.5 | 5.5 | 5.5 | 4.5 | 5.0 | 3.5 | 2.5 | 3.0 |
| 26 | 5.5 | 5.0 | 5.0 | 5.5 | 5.0 | 5.5 | 6.5 | 4.0 | 5.5 | 5.0 | 3.0 | 4.0 |
| 27 | 6.0 | 5.5 | 5.5 | 4.5 | 3.0 | 4.0 | 4.5 | 4.0 | 4.0 | 5.0 | 4.0 | 4.5 |
| 28 | 5.5 | 5.5 | 5.5 | 3.0 | 1.0 | 2.0 | 5.5 | 4.0 | 4.5 | 7.0 | 4.5 | 5.5 |
| 29 | 6.5 | 5.5 | 6.0 | 1.0 | 0.5 | 0.5 | 7.0 | 4.5 | 6.0 | 6.0 | 5.5 | 5.5 |
| 30 | 6.5 | 6.0 | 6.5 | 2.5 | 0.5 | 1.5 | 4.0 | 3.0 | 3.5 | 6.0 | 4.5 | 5.0 |
| 31 | 7.0 | 6.0 | 6.5 | --- | --- | --- | 3.0 | 2.0 | 2.5 | 5.0 | 3.5 | 4.5 |
| MONTH | 14.0 | 4.5 | 8.5 | 10.0 | 0.5 | 5.0 | 7.0 | 1.0 | 4.0 | 7.0 | 1.5 | 4.0 |

## 12197680 BLACK CREEK NEAR MINKLER, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 5.0 | 3.5 | 4.0 | --- | --- | --- | | | | --- | --- | --- |
| 2 | 3.5 | 3.0 | 3.0 | --- | --- | --- | | | | --- | --- | --- |
| 3 | 3.5 | 2.0 | 3.0 | --- | --- | --- | | | | --- | --- | --- |
| 4 | 2.0 | 0.5 | 1.0 | --- | --- | --- | | | | --- | --- | --- |
| 5 | 1.0 | 0.0 | 0.5 | --- | --- | --- | | | | --- | --- | --- |
| 6 | 2.0 | 0.5 | 1.0 | --- | --- | --- | | | | --- | --- | --- |
| 7 | 3.5 | 1.5 | 2.5 | --- | --- | --- | | | | 10.5 | 5.5 | 7.0 |
| 8 | 3.5 | 2.5 | 3.0 | --- | --- | --- | | | | 9.5 | 6.5 | 7.5 |
| 9 | 2.5 | 2.0 | 2.5 | --- | --- | --- | | | | 11.5 | 6.5 | 8.5 |
| 10 | 3.5 | 2.5 | 3.0 | --- | --- | --- | | | | 8.0 | 6.0 | 7.5 |
| 11 | 3.5 | 3.0 | 3.5 | --- | --- | --- | | | | 8.5 | 6.0 | 6.5 |
| 12 | 3.5 | 3.5 | 3.5 | --- | --- | --- | | | | 8.0 | 6.5 | 7.5 |
| 13 | 4.5 | 3.5 | 4.0 | --- | --- | --- | | | | 7.5 | 6.5 | 7.0 |
| 14 | 4.0 | 3.5 | 3.5 | --- | --- | --- | | | | 8.5 | 5.5 | 7.0 |
| 15 | 3.5 | 3.0 | 3.5 | --- | --- | --- | | | | 10.5 | 6.5 | 8.0 |
| 16 | 4.0 | 3.5 | 4.0 | --- | --- | --- | | | | 10.5 | 7.0 | 8.5 |
| 17 | 4.0 | 3.0 | 3.5 | --- | --- | --- | | | | 7.0 | 5.5 | 6.5 |
| 18 | 3.5 | 3.0 | 3.5 | --- | --- | --- | | | | 9.0 | 5.0 | 6.5 |
| 19 | 3.5 | 2.5 | 3.0 | --- | --- | --- | | | | 9.0 | 6.5 | 7.5 |
| 20 | 4.0 | 2.5 | 3.5 | --- | --- | --- | | | | 8.0 | 6.5 | 7.0 |
| 21 | 4.0 | 3.0 | 3.5 | --- | --- | --- | | | | 10.0 | 6.5 | 8.0 |
| 22 | 5.0 | 4.0 | 4.5 | --- | --- | --- | | | | 9.0 | 7.5 | 8.0 |
| 23 | 5.0 | 3.5 | 4.0 | --- | --- | --- | | | | 8.5 | 7.5 | 8.0 |
| 24 | 3.5 | 3.0 | 3.5 | 4.0 | 3.0 | 3.5 | | | | 8.0 | 6.5 | 7.5 |
| 25 | 3.5 | 2.0 | 2.5 | 4.0 | 3.0 | 3.5 | | | | 7.0 | 5.5 | 6.5 |
| 26 | 3.5 | 1.5 | 2.5 | 3.5 | 3.0 | 3.0 | | | | 9.5 | 7.0 | 8.0 |
| 27 | --- | --- | --- | 4.0 | 2.5 | 3.0 | | | | 9.5 | 6.0 | 7.5 |
| 28 | --- | --- | --- | --- | --- | --- | | | | 7.0 | 5.0 | 6.0 |
| 29 | --- | --- | --- | --- | --- | --- | | | | 6.5 | 5.5 | 6.0 |
| 30 | --- | --- | --- | --- | --- | --- | | | | 6.5 | 5.5 | 6.0 |
| 31 | --- | --- | --- | --- | --- | --- | | | | 6.5 | 5.5 | 6.0 |
| MONTH | 5.0 | 0.0 | 3.0 | --- | --- | --- | | | | 11.5 | 5.0 | 7.0 |

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 6.0 | 5.0 | 5.5 | --- | --- | --- | 13.5 | 12.5 | 13.0 | 13.0 | 11.5 | 12.5 |
| 2 | 6.5 | 5.0 | 5.5 | --- | --- | --- | 14.5 | 13.0 | 13.5 | 13.0 | 11.5 | 12.0 |
| 3 | 7.5 | 4.5 | 6.0 | --- | --- | --- | 13.5 | 12.5 | 12.5 | 13.5 | 11.5 | 12.5 |
| 4 | 8.5 | 5.0 | 6.5 | --- | --- | --- | 13.5 | 12.0 | 12.5 | 13.0 | 12.5 | 13.0 |
| 5 | 10.0 | 6.0 | 8.0 | --- | --- | --- | 13.0 | 12.0 | 12.5 | 13.0 | 10.0 | 11.5 |
| 6 | 9.5 | 8.0 | 8.5 | --- | --- | --- | 13.0 | 12.5 | 13.0 | 10.0 | 9.5 | 10.0 |
| 7 | 10.5 | 8.0 | 9.0 | --- | --- | --- | 13.0 | 12.5 | 12.5 | 11.5 | 9.0 | 10.0 |
| 8 | 10.5 | 8.5 | 9.5 | --- | --- | --- | 12.5 | 12.0 | 12.0 | 12.0 | 9.5 | 10.5 |
| 9 | 11.5 | 9.0 | 10.0 | --- | --- | --- | 13.0 | 12.0 | 12.5 | 13.0 | 10.5 | 11.5 |
| 10 | 10.0 | 9.0 | 9.5 | --- | --- | --- | 14.0 | 12.0 | 13.0 | 13.5 | 11.5 | 12.0 |
| 11 | 9.0 | 8.5 | 8.5 | --- | --- | --- | 14.5 | 12.5 | 13.5 | 12.0 | 11.5 | 11.5 |
| 12 | 8.5 | 7.0 | 7.5 | --- | --- | --- | 14.5 | 13.0 | 13.5 | 12.0 | 11.5 | 11.5 |
| 13 | 8.0 | 6.5 | 7.5 | --- | --- | --- | 13.0 | 12.0 | 12.5 | 12.5 | 11.0 | 12.0 |
| 14 | 10.0 | 7.0 | 8.5 | --- | --- | --- | 13.5 | 12.0 | 12.5 | 12.5 | 11.5 | 12.0 |
| 15 | 9.5 | 9.0 | 9.0 | --- | --- | --- | 13.0 | 11.5 | 12.5 | 12.0 | 11.0 | 11.5 |
| 16 | 9.0 | 8.0 | 8.5 | --- | --- | --- | 11.5 | 11.0 | 11.0 | 12.5 | 11.5 | 12.0 |
| 17 | 12.5 | 8.5 | 10.0 | --- | --- | --- | 11.5 | 11.0 | 11.0 | 12.5 | 12.0 | 12.0 |
| 18 | 13.5 | 10.5 | 11.5 | --- | --- | --- | 12.5 | 10.5 | 11.5 | 17.5 | 10.0 | 12.5 |
| 19 | 11.5 | 9.0 | 10.0 | --- | --- | --- | 11.5 | 10.5 | 11.0 | 16.5 | 8.5 | 12.5 |
| 20 | 11.5 | 8.5 | 9.5 | --- | --- | --- | 11.5 | 10.0 | 10.5 | --- | --- | --- |
| 21 | 10.5 | 9.0 | 9.5 | --- | --- | --- | 12.5 | 9.5 | 11.0 | --- | --- | --- |
| 22 | 10.0 | 8.5 | 9.0 | --- | --- | --- | 11.0 | 10.5 | 11.0 | --- | --- | --- |
| 23 | 9.0 | 8.5 | 9.0 | --- | --- | --- | 12.0 | 11.0 | 11.5 | --- | --- | --- |
| 24 | 9.0 | 8.0 | 8.5 | --- | --- | --- | 13.0 | 12.0 | 12.0 | --- | --- | --- |
| 25 | 9.0 | 7.5 | 8.0 | --- | --- | --- | 12.0 | 10.5 | 11.0 | --- | --- | --- |
| 26 | --- | --- | --- | --- | --- | --- | 11.0 | 10.0 | 10.5 | --- | --- | --- |
| 27 | --- | --- | --- | --- | --- | --- | 11.5 | 10.5 | 11.0 | --- | --- | --- |
| 28 | --- | --- | --- | --- | --- | --- | 13.5 | 11.5 | 12.5 | --- | --- | --- |
| 29 | --- | --- | --- | 13.0 | 12.0 | 12.5 | 14.0 | 12.5 | 13.0 | --- | --- | --- |
| 30 | --- | --- | --- | 14.0 | 12.0 | 12.5 | 14.0 | 12.5 | 13.0 | --- | --- | --- |
| 31 | --- | --- | --- | 14.0 | 12.5 | 13.0 | 14.0 | 12.5 | 13.0 | --- | --- | --- |
| MONTH | 13.5 | 4.5 | 8.5 | --- | --- | --- | 14.5 | 9.5 | 12.0 | --- | --- | --- |
| YEAR | 17.5 | 0.0 | 7.0 | | | | | | | | | |

## 12197700 WISEMAN CREEK NEAR LYMAN, WA

LOCATION.--Lat 48°31'49", long 122°08'08", in SW¼SW¼ sec.11, T.35 N., R.5 E., Skagit County, Hydrologic Unit 17110007, on left bank 200 ft (61 m) upstream from State Highway 20 crossing, and 3.4 mi (5.5 km) west of Lyman.

DRAINAGE AREA.--About 3 mi² (7.8 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 100 ft (30.5 m) from topographic map.

REMARKS.--Water discharge records good. No known regulation or diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 462 ft³/s (13.1 m³/s) Dec. 2, 1975, gage height, 4.23 ft (1.289 m); minimum, 0.65 ft³/s (0.017 m³/s) Sept. 25, 1974; minimum gage height, 1.59 ft (0.485 m) July 31, Aug. 1, 2, 3, 6, 7, 12, 13, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 462 ft³/s (13.1 m³/s) Dec. 2, gage height, 4.23 ft (1.289 m); minimum, 0.91 ft³/s (0.026 m³/s) Oct. 2; minimum gage height, 1.59 ft (0.485 m) July 31, Aug. 1, 2, 3, 6, 7, 12, 13.

REVISIONS.--The maximum discharge for the water years 1974 and 1975 have been revised to 116 ft³/s (3.29 m³/s) May 25, 1974, gage height, 3.17 ft (0.966 m), and 244 ft³/s (6.91 m³/s) Jan. 17, 1975, gage height, 3.68 ft (1.122 m); revised daily discharges, in cubic feet per second, for the high-water period in January 1975, are given below. These figures supersede those published in the reports for 1974 and 1975.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1975 | | | | | | | | | |
| Jan. 13 | 26 | Jan. 18 | 130 | Jan. 20 | 53 | Jan. 22 | 27 | Jan. 24 | 32 |
| 17 | 164 | 19 | 68 | 21 | 34 | 23 | 38 | 25 | 25 |

| Month | Total | Mean | Maximum | Minimum | Acre-feet |
|---|---|---|---|---|---|
| January 1975 | 930 | 30.0 | 164 | 11 | 1,840 |
| WTR YR 1975 | 4,546.04 | 12.5 | 164 | .73 | 9,020 |

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .98 | 17 | 143 | 27 | 20 | 13 | 21 | 44 | 18 | 7.8 | 2.3 | 3.7 |
| 2 | .98 | 23 | 306 | 23 | 18 | 12 | 18 | 47 | 16 | 6.7 | 2.3 | 3.7 |
| 3 | 1.1 | 24 | 186 | 22 | 16 | 11 | 18 | 30 | 12 | 6.1 | 2.4 | 3.5 |
| 4 | 1.7 | 15 | 103 | 41 | 15 | 11 | 21 | 28 | 11 | 11 | 2.4 | 3.4 |
| 5 | 12 | 17 | 49 | 42 | 13 | 10 | 28 | 31 | 9.4 | 8.4 | 2.3 | 22 |
| 6 | 5.6 | 18 | 36 | 31 | 12 | 10 | 33 | 28 | 8.7 | 6.4 | 2.3 | 16 |
| 7 | 2.7 | 16 | 33 | 26 | 12 | 11 | 30 | 30 | 8.1 | 6.1 | 3.4 | 9.8 |
| 8 | 2.2 | 15 | 85 | 26 | 11 | 11 | 40 | 31 | 7.6 | 7.3 | 5.4 | 7.0 |
| 9 | 2.7 | 15 | 84 | 22 | 11 | 11 | 37 | 30 | 7.0 | 6.1 | 4.1 | 5.2 |
| 10 | 3.7 | 13 | 60 | 21 | 12 | 17 | 38 | 30 | 6.7 | 5.7 | 3.1 | 4.3 |
| 11 | 2.5 | 11 | 41 | 22 | 16 | 16 | 43 | 27 | 6.7 | 5.4 | 2.6 | 4.1 |
| 12 | 2.1 | 11 | 32 | 18 | 35 | 14 | 30 | 21 | 8.7 | 5.2 | 2.3 | 3.9 |
| 13 | 2.1 | 22 | 28 | 16 | 24 | 12 | 26 | 20 | 7.3 | 4.8 | 2.4 | 3.7 |
| 14 | 3.2 | 55 | 25 | 37 | 21 | 12 | 24 | 17 | 6.4 | 4.5 | 2.6 | 5.9 |
| 15 | 8.8 | 78 | 27 | 105 | 21 | 12 | 22 | 16 | 20 | 4.1 | 3.5 | 4.8 |
| 16 | 5.9 | 39 | 23 | 78 | 31 | 12 | 18 | 18 | 37 | 3.9 | 8.7 | 3.9 |
| 17 | 20 | 27 | 22 | 53 | 28 | 20 | 17 | 16 | 19 | 3.7 | 8.4 | 3.5 |
| 18 | 32 | 21 | 21 | 41 | 24 | 21 | 16 | 13 | 13 | 3.5 | 4.8 | 3.5 |
| 19 | 27 | 17 | 21 | 31 | 21 | 16 | 17 | 12 | 12 | 3.2 | 14 | 3.2 |
| 20 | 17 | 14 | 21 | 27 | 20 | 16 | 36 | 12 | 10 | 3.5 | 31 | 2.9 |
| 21 | 11 | 13 | 20 | 24 | 18 | 14 | 23 | 11 | 8.7 | 3.4 | 12 | 2.6 |
| 22 | 8.8 | 13 | 19 | 27 | 16 | 19 | 21 | 11 | 9.8 | 3.4 | 7.8 | 2.7 |
| 23 | 7.8 | 80 | 23 | 25 | 18 | 17 | 18 | 9.8 | 8.7 | 3.2 | 6.7 | 2.9 |
| 24 | 6.4 | 168 | 38 | 21 | 17 | 18 | 21 | 12 | 8.1 | 2.9 | 6.4 | 2.7 |
| 25 | 12 | 55 | 33 | 19 | 16 | 24 | 20 | 14 | 8.7 | 2.7 | 6.7 | 2.4 |
| 26 | 13 | 87 | 55 | 19 | 15 | 19 | 21 | 14 | 7.6 | 2.6 | 6.4 | 2.3 |
| 27 | 10 | 45 | 38 | 44 | 14 | 17 | 26 | 15 | 6.7 | 2.6 | 7.6 | 2.1 |
| 28 | 11 | 29 | 33 | 30 | 15 | 19 | 30 | 15 | 5.9 | 2.4 | 7.0 | 2.1 |
| 29 | 28 | 24 | 60 | 30 | 14 | 17 | 33 | 15 | 5.9 | 2.4 | 5.4 | 2.1 |
| 30 | 35 | 45 | 50 | 25 | --- | 20 | 38 | 12 | 5.7 | 2.4 | 4.5 | 2.3 |
| 31 | 20 | --- | 33 | 22 | --- | 26 | --- | 11 | --- | 2.3 | 4.1 | --- |
| TOTAL | 317.26 | 1027 | 1748 | 995 | 524 | 478 | 784 | 640.8 | 320.4 | 143.7 | 184.9 | 142.2 |
| MEAN | 10.2 | 34.2 | 56.4 | 32.1 | 18.1 | 15.4 | 26.1 | 20.7 | 10.7 | 4.64 | 5.96 | 4.74 |
| MAX | 35 | 168 | 306 | 105 | 35 | 26 | 43 | 47 | 37 | 11 | 31 | 22 |
| MIN | .98 | 11 | 19 | 16 | 11 | 10 | 16 | 9.8 | 5.7 | 2.3 | 2.3 | 2.1 |
| AC-FT | 629 | 2040 | 3470 | 1970 | 1040 | 948 | 1560 | 1270 | 636 | 285 | 367 | 282 |

CAL YR 1975 TOTAL 6756.62 MEAN 18.5 MAX 306 MIN .98 AC-FT 13400
WTR YR 1976 TOTAL 7305.26 MEAN 20.0 MAX 306 MIN .98 AC-FT 14490

## 12197700 WISEMAN CREEK NEAR LYMAN, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: April 1974 to current year.

INSTRUMENTATION.--Temperature recorder installed April 24, 1974.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 15.5°C Aug. 29, 30, 1974, July 5, 7, 27, 1975; minimum, 1.0°C Jan. 11, 1975, Mar. 3, 4, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 14.0°C July 24, 25, Aug. 11, Sept. 20, 28; minimum recorded, 1.0°C Mar. 3, 4.

**TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTORER 1975 TO SEPTEMRER 1976**

| | OCTORER | | | NOVEMBER | | | DECEMRER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 12.5 | 10.5 | 11.5 | | | | --- | --- | --- | 3.0 | 2.5 | 2.5 |
| 2 | 12.5 | 11.5 | 12.0 | | | | --- | --- | --- | 3.5 | 2.5 | 3.0 |
| 3 | 12.5 | 11.5 | 12.0 | | | | --- | --- | --- | 4.0 | 3.5 | 4.0 |
| 4 | 11.5 | 11.0 | 11.0 | | | | --- | --- | --- | 4.5 | 4.0 | 4.5 |
| 5 | 11.0 | 9.5 | 10.5 | | | | --- | --- | --- | 4.5 | 4.0 | 4.0 |
| 6 | 10.0 | 9.0 | 9.5 | | | | --- | --- | --- | 4.5 | 4.0 | 4.0 |
| 7 | 9.5 | 8.5 | 9.0 | | | | --- | --- | --- | 4.5 | 4.0 | 4.0 |
| 8 | 10.0 | 9.0 | 9.5 | | | | --- | --- | --- | 5.0 | 4.5 | 4.5 |
| 9 | 10.5 | 10.0 | 10.0 | | | | --- | --- | --- | 5.0 | 4.5 | 4.5 |
| 10 | 11.0 | 10.0 | 10.5 | | | | --- | --- | --- | 5.0 | 4.5 | 4.5 |
| 11 | 10.0 | 9.0 | 9.5 | | | | --- | --- | --- | 4.5 | 4.0 | 4.5 |
| 12 | 10.0 | 9.5 | 9.5 | | | | --- | --- | --- | 4.0 | 3.5 | 4.0 |
| 13 | 10.5 | 10.0 | 10.0 | | | | --- | --- | --- | 4.0 | 3.5 | 3.5 |
| 14 | 10.5 | 9.5 | 10.0 | | | | --- | --- | --- | 4.5 | 4.0 | 4.5 |
| 15 | 10.0 | 9.5 | 9.5 | | | | --- | --- | --- | 5.0 | 4.0 | 4.5 |
| 16 | 10.5 | 9.0 | 9.5 | | | | 3.5 | 3.0 | 3.5 | 6.0 | 5.0 | 5.5 |
| 17 | 11.0 | 9.0 | 10.5 | | | | 3.5 | 3.0 | 3.0 | 5.5 | 5.0 | 5.0 |
| 18 | 9.5 | 8.5 | 9.0 | | | | 4.0 | 3.0 | 3.5 | 5.5 | 4.0 | 5.0 |
| 19 | 9.0 | 8.0 | 8.5 | | | | 4.0 | 3.0 | 3.5 | 5.0 | 3.5 | 4.5 |
| 20 | --- | --- | --- | | | | 4.5 | 3.5 | 4.0 | 5.0 | 4.0 | 4.5 |
| 21 | --- | --- | --- | | | | 5.5 | 4.0 | 4.5 | 5.5 | 4.5 | 5.0 |
| 22 | --- | --- | --- | | | | 5.5 | 5.5 | 5.5 | 5.5 | 4.5 | 5.0 |
| 23 | --- | --- | --- | | | | 6.0 | 5.0 | 5.5 | 5.0 | 3.5 | 4.5 |
| 24 | --- | --- | --- | | | | 6.5 | 5.0 | 6.0 | 4.0 | 3.5 | 3.5 |
| 25 | --- | --- | --- | | | | 6.0 | 5.0 | 5.5 | 4.5 | 4.0 | 4.0 |
| 26 | --- | --- | --- | | | | 7.0 | 5.0 | 6.0 | 5.5 | 4.0 | 5.0 |
| 27 | --- | --- | --- | | | | 5.0 | 4.5 | 5.0 | 6.0 | 5.0 | 5.5 |
| 28 | --- | --- | --- | | | | 6.0 | 5.0 | 5.5 | 7.0 | 5.5 | 6.0 |
| 29 | --- | --- | --- | | | | 7.5 | 5.0 | 6.5 | 6.5 | 6.0 | 6.0 |
| 30 | --- | --- | --- | | | | 5.0 | 4.0 | 4.5 | 6.5 | 5.0 | 5.5 |
| 31 | --- | --- | --- | | | | 4.0 | 3.0 | 3.5 | 5.5 | 4.0 | 4.5 |
| MONTH | --- | --- | --- | | | | --- | --- | --- | 7.0 | 2.5 | 4.5 |

## 12197700 WISEMAN CREEK NEAR LYMAN, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 5.0 | 4.0 | 4.5 | 4.0 | 2.5 | 3.0 | 5.5 | 2.5 | 4.0 | 10.5 | 6.5 | 8.0 |
| 2 | 4.5 | 4.0 | 4.0 | 3.5 | 2.0 | 2.5 | 6.5 | 3.0 | 4.5 | 7.0 | 6.0 | 6.5 |
| 3 | 4.5 | 3.5 | 4.0 | 2.5 | 1.0 | 2.0 | 7.5 | 4.0 | 5.5 | 8.0 | 6.0 | 7.0 |
| 4 | 3.0 | 1.5 | 2.5 | 2.5 | 1.0 | 2.0 | 7.5 | 4.0 | 5.5 | 7.5 | 6.5 | 7.0 |
| 5 | 2.5 | 1.5 | 2.0 | 3.5 | 1.5 | 2.5 | 7.5 | 4.5 | 5.5 | 7.5 | 6.0 | 6.5 |
| 6 | 3.0 | 1.5 | 2.0 | 4.5 | 2.0 | 3.0 | 6.5 | 4.5 | 5.5 | 9.0 | 5.0 | 7.0 |
| 7 | 4.0 | 2.5 | 3.0 | 5.0 | 3.0 | 4.0 | 7.0 | 4.5 | 5.5 | 10.5 | 6.0 | 8.0 |
| 8 | 4.5 | 3.5 | 4.0 | 5.0 | 2.5 | 3.5 | 6.0 | 4.5 | 5.5 | 10.5 | 7.5 | 8.5 |
| 9 | 4.0 | 3.5 | 4.0 | 5.0 | 4.0 | 4.5 | 7.5 | 4.5 | 5.5 | 11.5 | 7.0 | 9.0 |
| 10 | 4.5 | 4.0 | 4.0 | 4.5 | 3.5 | 4.5 | 8.5 | 5.0 | 6.0 | 9.0 | 7.0 | 8.5 |
| 11 | 4.5 | 4.5 | 4.5 | 4.5 | 2.5 | 3.5 | 5.5 | 4.5 | 5.0 | 9.0 | 6.5 | 7.5 |
| 12 | 4.5 | 4.0 | 4.0 | 4.0 | 3.0 | 3.5 | 7.0 | 4.0 | 5.0 | 9.0 | 7.5 | 8.0 |
| 13 | 5.5 | 4.0 | 5.0 | 4.5 | 3.0 | 4.0 | 6.5 | 4.0 | 5.0 | 8.5 | 7.5 | 8.0 |
| 14 | 5.0 | 4.0 | 4.5 | 5.5 | 3.0 | 4.0 | 5.0 | 4.0 | 4.5 | 9.0 | 6.5 | 7.5 |
| 15 | 5.0 | 4.0 | 4.5 | 5.5 | 3.0 | 4.5 | 4.5 | 3.0 | 3.5 | 10.5 | 7.0 | 8.5 |
| 16 | 4.5 | 4.5 | 4.5 | 6.5 | 4.5 | 5.5 | 6.0 | 3.5 | 4.5 | 11.0 | 8.5 | 9.5 |
| 17 | 4.5 | 4.0 | 4.5 | 5.5 | 5.0 | 5.5 | 5.5 | 4.5 | 5.0 | 8.0 | 6.5 | 7.5 |
| 18 | 4.5 | 4.0 | 4.5 | 6.0 | 4.0 | 5.0 | 6.0 | 4.5 | 5.5 | 9.0 | 5.5 | 7.5 |
| 19 | 4.5 | 3.5 | 4.0 | 4.5 | 3.5 | 4.0 | 7.5 | 5.0 | 6.0 | 9.0 | 7.0 | 8.0 |
| 20 | 5.0 | 4.0 | 4.5 | 4.0 | 3.5 | 3.5 | 5.5 | 4.5 | 5.0 | 8.5 | 7.5 | 8.0 |
| 21 | 5.0 | 4.0 | 4.5 | 5.0 | 3.5 | 4.5 | 6.5 | 4.0 | 5.0 | 10.0 | 7.0 | 8.5 |
| 22 | 5.5 | 5.0 | 5.5 | 5.0 | 3.5 | 4.5 | 6.5 | 4.5 | 5.5 | 9.5 | 8.5 | 8.5 |
| 23 | 6.0 | 4.5 | 5.0 | 4.5 | 3.0 | 4.0 | 6.0 | 5.0 | 5.5 | 9.0 | 8.0 | 8.5 |
| 24 | 4.5 | 4.5 | 4.5 | 5.0 | 4.0 | 4.5 | 6.0 | 5.0 | 6.0 | 8.5 | 7.5 | 8.5 |
| 25 | 4.5 | 3.5 | 4.0 | 4.5 | 3.5 | 4.0 | 6.5 | 5.0 | 5.5 | 8.0 | 6.5 | 7.5 |
| 26 | 5.0 | 3.0 | 4.0 | 4.5 | 3.5 | 4.0 | 8.5 | 3.5 | 5.5 | 10.0 | 7.5 | 8.5 |
| 27 | 5.0 | 3.5 | 4.0 | 5.0 | 3.5 | 4.0 | 9.5 | 5.0 | 7.0 | 10.0 | 7.0 | 8.5 |
| 28 | 3.5 | 2.0 | 3.0 | 4.5 | 3.5 | 4.0 | 9.0 | 5.5 | 7.0 | 7.5 | 6.5 | 7.0 |
| 29 | 3.5 | 2.5 | 3.0 | 5.0 | 3.5 | 4.5 | 10.0 | 6.0 | 7.0 | 7.5 | 6.5 | 7.0 |
| 30 | --- | --- | --- | 5.5 | 4.5 | 5.0 | 9.5 | 6.5 | 7.5 | 7.5 | 6.5 | 7.0 |
| 31 | --- | --- | --- | 4.5 | 3.0 | 4.0 | --- | --- | --- | 7.5 | 6.5 | 7.0 |
| MONTH | 6.0 | 1.5 | 4.0 | 6.5 | 1.0 | 4.0 | 10.0 | 2.5 | 5.5 | 11.5 | 5.0 | 8.0 |

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 7.0 | 6.0 | 6.5 | 11.0 | 10.5 | 10.5 | 13.0 | 11.5 | 12.0 | 12.5 | 11.5 | 12.0 |
| 2 | 7.5 | 6.0 | 6.5 | 12.0 | 10.0 | 11.0 | 13.5 | 12.0 | 12.5 | 12.5 | 11.5 | 12.0 |
| 3 | 8.0 | 5.0 | 6.5 | 11.5 | 10.5 | 11.0 | 12.5 | 12.0 | 12.0 | 13.0 | 11.0 | 12.0 |
| 4 | 9.0 | 6.0 | 7.5 | 12.0 | 11.0 | 11.5 | 13.0 | 11.5 | 12.0 | 12.5 | 11.5 | 12.0 |
| 5 | 10.0 | 6.5 | 8.5 | 13.5 | 11.0 | 12.0 | 12.5 | 12.0 | 12.0 | 13.0 | 11.0 | 12.0 |
| 6 | 10.0 | 8.0 | 9.0 | 13.0 | 12.5 | 12.5 | 12.5 | 12.0 | 12.5 | 11.0 | 10.0 | 10.5 |
| 7 | 11.0 | 8.5 | 9.5 | 13.0 | 12.5 | 12.5 | 12.5 | 12.0 | 12.0 | 11.5 | 10.0 | 10.5 |
| 8 | 10.5 | 9.0 | 10.0 | 12.5 | 12.0 | 12.5 | 12.5 | 12.0 | 12.0 | 11.5 | 9.5 | 10.5 |
| 9 | 11.5 | 9.5 | 10.5 | 12.0 | 11.5 | 11.5 | 13.0 | 12.0 | 12.5 | 12.0 | 10.0 | 11.0 |
| 10 | 10.5 | 9.5 | 10.0 | 12.5 | 11.0 | 11.5 | 13.5 | 11.5 | 12.5 | 12.5 | 10.5 | 11.5 |
| 11 | 9.5 | 9.0 | 9.0 | 12.0 | 11.5 | 11.5 | 14.0 | 12.0 | 13.0 | 11.5 | 11.0 | 11.5 |
| 12 | 9.0 | 8.0 | 8.5 | 11.5 | 10.5 | 11.0 | 13.5 | 12.0 | 13.0 | 12.0 | 11.0 | 11.5 |
| 13 | 9.0 | 7.5 | 8.0 | 12.5 | 10.5 | 11.5 | 12.5 | 12.0 | 12.5 | 12.5 | 11.0 | 11.5 |
| 14 | 10.5 | 7.5 | 9.0 | 13.0 | 10.0 | 11.5 | 13.0 | 11.5 | 12.5 | 12.5 | 12.0 | 12.0 |
| 15 | 10.0 | 9.5 | 9.5 | 13.5 | 11.0 | 12.5 | 13.0 | 12.0 | 12.0 | 12.0 | 11.5 | 11.5 |
| 16 | 9.5 | 9.0 | 9.5 | 13.5 | 11.5 | 12.5 | --- | --- | --- | 12.5 | 11.5 | 12.0 |
| 17 | 12.0 | 9.0 | 10.5 | 13.0 | 11.0 | 12.0 | --- | --- | --- | 12.5 | 12.0 | 12.0 |
| 18 | 13.0 | 10.5 | 11.5 | 12.5 | 9.5 | 11.0 | --- | --- | --- | 13.0 | 11.5 | 12.0 |
| 19 | 12.0 | 9.5 | 11.0 | 12.5 | 9.5 | 11.0 | --- | --- | --- | 13.0 | 11.5 | 12.0 |
| 20 | 11.5 | 8.5 | 10.0 | 12.5 | 11.5 | 12.0 | --- | --- | --- | 14.0 | 12.0 | 13.0 |
| 21 | 11.0 | 9.5 | 10.0 | 12.0 | 11.0 | 11.5 | --- | --- | --- | 13.0 | 12.0 | 12.5 |
| 22 | 10.0 | 9.5 | 9.5 | 11.5 | 10.5 | 11.0 | --- | --- | --- | 13.0 | 12.5 | 12.5 |
| 23 | 9.5 | 9.0 | 9.5 | 13.5 | 11.0 | 12.0 | --- | --- | --- | 12.5 | 12.0 | 12.5 |
| 24 | 10.0 | 9.0 | 9.5 | 14.0 | 12.0 | 13.0 | --- | --- | --- | 13.0 | 11.5 | 12.5 |
| 25 | 9.5 | 8.5 | 9.0 | 14.0 | 11.5 | 12.5 | 12.0 | 11.0 | 11.5 | 13.5 | 12.0 | 12.5 |
| 26 | 10.0 | 8.0 | 9.0 | 13.0 | 11.0 | 12.0 | 11.5 | 10.5 | 11.0 | 13.5 | 12.0 | 13.0 |
| 27 | 11.5 | 8.5 | 10.0 | 12.5 | 10.0 | 11.5 | 11.5 | 11.0 | 11.0 | 13.5 | 12.5 | 13.0 |
| 28 | 12.0 | 10.0 | 11.0 | 11.5 | 10.5 | 11.0 | 13.0 | 11.5 | 12.0 | 14.0 | 12.5 | 13.0 |
| 29 | 11.5 | 10.5 | 11.0 | 12.5 | 11.5 | 12.0 | 13.0 | 12.0 | 12.5 | 13.5 | 12.5 | 13.0 |
| 30 | 11.5 | 10.5 | 11.0 | 13.0 | 11.0 | 12.0 | 13.5 | 12.0 | 12.5 | 12.5 | 11.5 | 12.0 |
| 31 | --- | --- | --- | 13.5 | 12.0 | 12.5 | 13.5 | 11.5 | 12.5 | --- | --- | --- |
| MONTH | 13.0 | 5.0 | 9.5 | 14.0 | 9.5 | 11.5 | --- | --- | --- | 14.0 | 9.5 | 12.0 |
| YEAR | 14.0 | 1.0 | 7.5 | | | | | | | | | |

## 12199000 SKAGIT RIVER NEAR SEDRO WOOLLEY, WA

LOCATION.--Lat 48°29'03", long 122°14'31", in NW¼NW¼ sec.36, T.35 N., R.4 E., Skagit County, Hydrologic Unit 17110007, in left bank pier of bridge on State Highway No. 9, 1.0 mi (1.6 km) south of Sedro Woolley, and

at mile 22.3 (35.9

DRAINAGE AREA.--3,015 mi² (7,809 km²), of which 400 mi² (1,036 km²) is in Canada.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1908-1924, February 1975 to current year.

GAGE (corrected).--Water-stage recorder. Datum of gage is 15.46 ft (4.712 m) above mean sea level. May 1, 1908 to Dec. 31, 1923 nonrecording gage at site 200 ft (61 m) upstream at datum 24.4 ft (7.44 m) lower.

REMARKS.--Water-discharge records good. Flow regulated for powerplants on Baker and upper Skagit Rivers by Ross Reservoir (see sta 12175000) and by Diablo and Gorge Reservoirs, Baker Lake and Lake Shannon (see pp.273). Small diversions for domestic and municipal use.

AVERAGE DISCHARGE.--17 years (1908-1924, 1975-76) 16,570 ft³/s (469 m³/s); 12,000,000 acre-ft/yr (14,800 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge observed, 220,000 ft³/s (6,230 m³/s) Nov. 30, 1909, gage height, 56.5 ft (17.22 m) datum then in use, from rating curve extended above 62,000 ft³/s (1,760 m³/s); minimum observed, 2,830 ft³/s (80.1 m³/s) Sept 29-30, Oct. 10-11, 1915.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of about 1815 reached a stage of approximately 39.1 ft (11.92 m), present datum (corrected), discharge about 400,000 ft³/s (11,300 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50,000 ft³/s (1,420 m³/s) and maximum (*) from rating curve extended above 33,000 ft³/s (935 m³/s):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 18 | 1000 | 60,700 | 1,720 | 18.64 | 5.681 | Dec. 4 | 1700 | *121,000 | 3,430 | *26.10 | 7.955 |
| Nov. 15 | 2000 | 56,500 | 1,600 | 17.96 | 5.474 | Dec. 9 | 0400 | 65,200 | 1,850 | 19.29 | 5.880 |
| Nov. 24 | 2300 | 50,800 | 1,440 | 17.02 | 5.188 | | | | | | |

Minimum daily discharge, 5,300 ft³/s (150 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5300 | 22800 | 26700 | 23000 | 19500 | 15900 | 16700 | 18500 | 23100 | 27700 | 24600 | 15300 |
| 2 | 5400 | 23900 | 61500 | 21200 | 19400 | 15500 | 15700 | 24000 | 22100 | 27600 | 28900 | 16100 |
| 3 | 5400 | 40600 | 105000 | 19700 | 19500 | 15000 | 13100 | 25800 | 19500 | 23000 | 26600 | 15500 |
| 4 | 10300 | 45100 | 116000 | 21600 | 19100 | 15100 | 11900 | 23000 | 19000 | 22800 | 23900 | 13200 |
| 5 | 11700 | 38800 | 95400 | 25600 | 19000 | 14600 | 13900 | 24700 | 18400 | 23600 | 22700 | 17500 |
| 6 | 15200 | 35900 | 63400 | 22600 | 18600 | 14300 | 16800 | 24500 | 18300 | 26900 | 23000 | 23200 |
| 7 | 11000 | 34100 | 52100 | 20800 | 17700 | 14500 | 16300 | 22400 | 20000 | 32000 | 25800 | 17600 |
| 8 | 10200 | 31300 | 53900 | 21400 | 16500 | 14500 | 17300 | 25100 | 22700 | 37300 | 26800 | 16100 |
| 9 | 9250 | 26600 | 62600 | 20800 | 16300 | 14500 | 19500 | 29400 | 23600 | 35300 | 23100 | 14300 |
| 10 | 10100 | 23100 | 45600 | 20200 | 17700 | 15000 | 18900 | 31700 | 25700 | 33500 | 22700 | 12600 |
| 11 | 9670 | 19800 | 33300 | 20300 | 17600 | 14400 | 21400 | 34400 | 22900 | 32800 | 19800 | 12700 |
| 12 | 7660 | 18000 | 29500 | 19900 | 20600 | 12800 | 20000 | 31900 | 24300 | 28900 | 20700 | 10900 |
| 13 | 6140 | 17400 | 26700 | 18400 | 18200 | 12800 | 18000 | 27400 | 20500 | 28400 | 22000 | 10500 |
| 14 | 5660 | 27700 | 22900 | 18300 | 17200 | 11900 | 17800 | 28500 | 18200 | 25700 | 21000 | 12100 |
| 15 | 10400 | 47400 | 23000 | 24100 | 17300 | 12000 | 20000 | 23300 | 20300 | 28300 | 16200 | 12200 |
| 16 | 10700 | 38500 | 21300 | 38900 | 19100 | 10900 | 15700 | 20400 | 28600 | 31800 | 19500 | 12100 |
| 17 | 33000 | 29300 | 20300 | 32700 | 19300 | 11500 | 13400 | 25000 | 30100 | 33000 | 19500 | 12200 |
| 18 | 53100 | 26000 | 19500 | 27800 | 19200 | 14200 | 13700 | 22400 | 29900 | 34200 | 18800 | 11700 |
| 19 | 30400 | 23700 | 18800 | 24500 | 18400 | 16300 | 13700 | 20200 | 32400 | 32400 | 18900 | 11200 |
| 20 | 29200 | 21800 | 17800 | 23900 | 17500 | 15800 | 15200 | 22300 | 31800 | 31100 | 23100 | 11400 |
| 21 | 23100 | 21500 | 17100 | 20600 | 15800 | 13400 | 17100 | 21700 | 26900 | 29900 | 18700 | 11200 |
| 22 | 20000 | 18600 | 16000 | 19500 | 15300 | 13700 | 14300 | 21700 | 22900 | 26800 | 16300 | 10600 |
| 23 | 18200 | 21900 | 16100 | 19600 | 15900 | 18000 | 14000 | 23900 | 21800 | 25900 | 14200 | 9870 |
| 24 | 15700 | 39500 | 19600 | 18600 | 17000 | 17900 | 13800 | 24100 | 19900 | 29500 | 15800 | 9370 |
| 25 | 16000 | 41200 | 20000 | 18200 | 17600 | 20300 | 14300 | 26300 | 21400 | 31300 | 20400 | 9170 |
| 26 | 19100 | 34000 | 30700 | 17800 | 17000 | 18700 | 14400 | 23200 | 21200 | 29800 | 23800 | 9180 |
| 27 | 18000 | 27300 | 41500 | 27900 | 15900 | 16900 | 14200 | 27500 | 19000 | 27400 | 18600 | 9560 |
| 28 | 16400 | 23400 | 27500 | 27400 | 16400 | 15100 | 13700 | 33700 | 20600 | 22500 | 17300 | 9750 |
| 29 | 19100 | 20700 | 25900 | 21500 | 15600 | 16000 | 13500 | 26500 | 27000 | 21300 | 17800 | 9670 |
| 30 | 33400 | 19900 | 32000 | 22100 | --- | 16100 | 15700 | 22900 | 30200 | 23200 | 16000 | 9610 |
| 31 | 27200 | --- | 26700 | 20300 | --- | 16900 | --- | 19100 | --- | 26400 | 16000 | --- |
| TOTAL | 515980 | 859800 | 1188400 | 704200 | 514600 | 464500 | 474000 | 775500 | 702300 | 890300 | 642500 | 376380 |
| MEAN | 16640 | 28660 | 38340 | 22720 | 17740 | 14990 | 15800 | 25020 | 23410 | 28720 | 20730 | 12550 |
| MAX | 53100 | 47400 | 116000 | 38900 | 20600 | 20300 | 21400 | 34400 | 32400 | 37300 | 28900 | 23200 |
| MIN | 5300 | 17400 | 16000 | 17800 | 15300 | 10900 | 11900 | 18500 | 18200 | 21300 | 14200 | 9170 |
| AC-FT | 1023000 | 1705000 | 2357000 | 1397000 | 1021000 | 921300 | 940200 | 1538000 | 1393000 | 1766000 | 1274000 | 746500 |

WTR YR 1976 TOTAL 8108460 MEAN 22150 MAX 116000 MIN 5300 AC-FT 16090000

## WATER-QUALITY RECORDS

**PERIOD OF RECORD.**--Water years 1974, October 1975 to September 1976.

**PERIOD OF DAILY RECORD.**--
SPECIFIC CONDUCTANCE: October 1975 to September 1976.
WATER TEMPERATURE: October 1975 to September 1976.
DISSOLVED OXYGEN: October 1975 to September 1976.

**INSTRUMENTATION.**--Water-quality monitor since October 1975.

**REMARKS.**--Interruptions in the record were due to malfunctions of the instrument. In addition to water-quality monitor record, field checks were taken approximately twice weekly by the observor, which are included in this report.

**COOPERATION.**--Washington State Department of Ecology.

**EXTREMES OUTSIDE PERIOD OF DAILY RECORD.**--A specific conductance of 77 micromhos was observed Feb. 11, 1974. A temperature of 14.9°C was observed on Aug. 26, 1974.

**EXTREMES FOR CURRENT YEAR.**--
SPECIFIC CONDUCTANCE: Maximum recorded, 64 micromhos Oct. 1, 2, 3; minimum, recorded, 21 micromhos July 31.
WATER TEMPERATURE: Maximum recorded, 13.5°C Aug. 31, Sept. 19, 20, 25-29; minimum recorded, 3.0°C Jan. 1, 2.
DISSOLVED OXYGEN: Maximum recorded, 13.3 mg/L Dec. 5, 8; minimu recorded, 10.0 mg/L Oct. 1.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 64 | 57 | 61 | --- | --- | --- | 44 | 35 | 42 | 44 | 41 | 42 |
| 2 | 64 | 56 | 59 | --- | --- | --- | --- | --- | --- | 47 | 44 | 45 |
| 3 | 64 | 59 | 62 | --- | --- | --- | --- | --- | --- | 48 | 40 | 45 |
| 4 | 57 | 48 | 50 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | 47 | 42 | 45 | --- | --- | --- | 40 | 32 | 36 | --- | --- | --- |
| 6 | 45 | 39 | 42 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 45 | 36 | 40 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 43 | 41 | 42 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | 48 | 45 | 46 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | 48 | 45 | 47 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | --- | --- | --- | --- | --- | --- | 48 | 44 | 45 | 51 | 49 | 50 |
| 12 | --- | --- | --- | --- | --- | --- | 44 | 43 | 43 | 54 | 49 | 51 |
| 13 | --- | --- | --- | --- | --- | --- | 49 | 42 | 44 | 56 | 51 | 53 |
| 14 | --- | --- | --- | --- | --- | --- | 51 | 49 | 50 | 54 | 49 | 52 |
| 15 | --- | --- | --- | --- | --- | --- | 53 | 49 | 51 | 47 | 35 | 40 |
| 16 | --- | --- | --- | --- | --- | --- | 54 | 47 | 50 | 35 | 35 | 35 |
| 17 | --- | --- | --- | 49 | 45 | 47 | 56 | 47 | 51 | 40 | 36 | 39 |
| 18 | --- | --- | --- | --- | --- | --- | 56 | 54 | 55 | 43 | 40 | 42 |
| 19 | --- | --- | --- | --- | --- | --- | 58 | 55 | 56 | 46 | 43 | 45 |
| 20 | --- | --- | --- | --- | --- | --- | 57 | 50 | 54 | 48 | 46 | 48 |
| 21 | --- | --- | --- | --- | --- | --- | 56 | 53 | 54 | 51 | 48 | 50 |
| 22 | --- | --- | --- | --- | --- | --- | 59 | 51 | 54 | 52 | 49 | 50 |
| 23 | --- | --- | --- | 49 | 40 | 46 | 58 | 51 | 54 | 52 | 48 | 49 |
| 24 | --- | --- | --- | --- | --- | --- | 62 | 52 | 53 | 53 | 49 | 51 |
| 25 | --- | --- | --- | --- | --- | --- | 62 | 54 | 58 | 55 | 50 | 52 |
| 26 | --- | --- | --- | 42 | 39 | 40 | 60 | 52 | 57 | 55 | 52 | 53 |
| 27 | --- | --- | --- | 46 | 42 | 44 | --- | --- | --- | --- | --- | --- |
| 28 | --- | --- | --- | 48 | 46 | 47 | --- | --- | --- | --- | --- | --- |
| 29 | --- | --- | --- | 50 | 48 | 49 | --- | --- | --- | --- | --- | --- |
| 30 | --- | --- | --- | 50 | 46 | 48 | --- | --- | --- | --- | --- | --- |
| 31 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MONTH | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

12199000 SKAGIT RIVER NEAR SEDRO WOOLLEY, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | | | | --- | --- | --- | 58 | 56 | 57 | 50 | 43 | 47 |
| 2 | | | | --- | --- | --- | 60 | 56 | 58 | 44 | 38 | 41 |
| 3 | | | | --- | --- | --- | 63 | 60 | 62 | 42 | 37 | 41 |
| 4 | | | | --- | --- | --- | 64 | 62 | 63 | 46 | 40 | 44 |
| 5 | | | | --- | --- | --- | 63 | 58 | 61 | 47 | 43 | 46 |
| 6 | | | | --- | --- | --- | 58 | 54 | 57 | 50 | 46 | 48 |
| 7 | | | | --- | --- | --- | 55 | 53 | 54 | 49 | 44 | 47 |
| 8 | | | | --- | --- | --- | 55 | 51 | 54 | 45 | 35 | 42 |
| 9 | | | | --- | --- | --- | 51 | 50 | 51 | 36 | 30 | 32 |
| 10 | | | | --- | --- | --- | 51 | 50 | 51 | --- | --- | --- |
| 11 | | | | --- | --- | --- | 52 | 49 | 51 | --- | --- | --- |
| 12 | | | | --- | --- | --- | 52 | 50 | 51 | --- | --- | --- |
| 13 | | | | --- | --- | --- | 54 | 51 | 53 | --- | --- | --- |
| 14 | | | | --- | --- | --- | 55 | 53 | 55 | --- | --- | --- |
| 15 | | | | --- | --- | --- | 56 | 54 | 55 | --- | --- | --- |
| 16 | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | | | | --- | --- | --- | --- | --- | --- | 41 | 38 | 40 |
| 20 | | | | --- | --- | --- | 59 | 56 | 57 | 37 | 32 | 34 |
| 21 | | | | --- | --- | --- | 58 | 55 | 57 | 41 | 35 | 39 |
| 22 | | | | --- | --- | --- | 61 | 59 | 60 | 44 | 41 | 42 |
| 23 | | | | --- | --- | --- | 62 | 60 | 61 | --- | --- | --- |
| 24 | | | | 53 | 52 | 53 | 62 | 61 | 61 | 41 | 39 | 40 |
| 25 | | | | 52 | 50 | 51 | 61 | 59 | 59 | 42 | 39 | 41 |
| 26 | | | | 55 | 52 | 53 | 61 | 60 | 61 | 43 | 39 | 41 |
| 27 | | | | 57 | 55 | 56 | 61 | 59 | 60 | 40 | 37 | 39 |
| 28 | | | | 60 | 59 | 59 | 60 | 56 | 58 | 36 | 31 | 33 |
| 29 | | | | 63 | 57 | 59 | 56 | 53 | 55 | 39 | 33 | 37 |
| 30 | | | | 59 | 56 | 57 | 53 | 47 | 51 | 43 | 37 | 38 |
| 31 | | | | 58 | 55 | 57 | --- | --- | --- | 41 | 37 | 39 |
| MONTH | | | | --- | --- | --- | 64 | 47 | 57 | --- | --- | --- |

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 45 | 44 | 44 | 36 | 33 | 34 | 30 | 23 | 26 | 45 | 36 | 41 |
| 2 | 47 | 43 | 45 | 37 | 35 | 36 | --- | --- | --- | 43 | 34 | 39 |
| 3 | 48 | 45 | 46 | 39 | 35 | 38 | --- | --- | --- | 42 | 37 | 39 |
| 4 | --- | --- | --- | 36 | 32 | 35 | --- | --- | --- | 46 | 39 | 42 |
| 5 | --- | --- | --- | 33 | 30 | 32 | --- | --- | --- | 42 | 39 | 41 |
| 6 | --- | --- | --- | 32 | 29 | 31 | --- | --- | --- | 41 | 35 | 38 |
| 7 | 42 | 38 | 40 | 33 | 29 | 31 | 32 | 25 | 30 | 40 | 35 | 38 |
| 8 | 39 | 35 | 37 | 37 | 32 | 35 | 32 | 29 | 31 | 40 | 28 | 36 |
| 9 | --- | --- | --- | 36 | 32 | 35 | 33 | 27 | 31 | 35 | 32 | 34 |
| 10 | 37 | 33 | 35 | 39 | 35 | 38 | 37 | 28 | 33 | 38 | 36 | 37 |
| 11 | 35 | 32 | 34 | 40 | 39 | 40 | 41 | 30 | 36 | 43 | 40 | 41 |
| 12 | 39 | 35 | 37 | 41 | 38 | 40 | 39 | 30 | 35 | 42 | 38 | 40 |
| 13 | 37 | 35 | 36 | 40 | 37 | 39 | 40 | 34 | 38 | 45 | 35 | 40 |
| 14 | 39 | 37 | 38 | 41 | 33 | 39 | 40 | 24 | 33 | 45 | 41 | 43 |
| 15 | 40 | 36 | 38 | 43 | 34 | 38 | 33 | 26 | 30 | 50 | 43 | 46 |
| 16 | 35 | 26 | 31 | 38 | 32 | 35 | 35 | 31 | 33 | 49 | 42 | 46 |
| 17 | 30 | 27 | 29 | 37 | 31 | 34 | 33 | 28 | 31 | 46 | 43 | 45 |
| 18 | 31 | 26 | 29 | --- | --- | --- | --- | --- | --- | 47 | 43 | 44 |
| 19 | 30 | 26 | 28 | --- | --- | --- | --- | --- | --- | 48 | 42 | 45 |
| 20 | 31 | 27 | 29 | --- | --- | --- | --- | --- | --- | 45 | 38 | 42 |
| 21 | 35 | 33 | 34 | --- | --- | --- | 36 | 27 | 33 | 47 | 41 | 45 |
| 22 | 38 | 35 | 37 | --- | --- | --- | 38 | 32 | 35 | 47 | 43 | 45 |
| 23 | --- | --- | --- | --- | --- | --- | 40 | 35 | 37 | 47 | 43 | 45 |
| 24 | --- | --- | --- | --- | --- | --- | 42 | 33 | 37 | 49 | 44 | 46 |
| 25 | 37 | 35 | 36 | --- | --- | --- | --- | --- | --- | 48 | 42 | 45 |
| 26 | 38 | 37 | 38 | --- | --- | --- | --- | --- | --- | 46 | 41 | 42 |
| 27 | 40 | 37 | 39 | 32 | 29 | 30 | --- | --- | --- | 43 | 33 | 39 |
| 28 | 38 | 35 | 37 | 34 | 29 | 32 | --- | --- | --- | 41 | 35 | 38 |
| 29 | 36 | 30 | 33 | 35 | 30 | 33 | 41 | 29 | 36 | 41 | 37 | 39 |
| 30 | 33 | 30 | 32 | --- | --- | --- | 43 | 34 | 39 | 42 | 38 | 39 |
| 31 | --- | --- | --- | 26 | 21 | 24 | 43 | 33 | 38 | --- | --- | --- |
| MONTH | 48 | 26 | 36 | --- | --- | --- | --- | --- | --- | 50 | 28 | 41 |
| YEAR | 64 | 21 | 44 | | | | | | | | | |

### 12199000 SKAGIT RIVER NEAR SEDRO WOOLLEY, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 13.0 | 11.5 | 12.0 | 8.0 | 8.0 | 8.0 | 4.5 | 3.5 | 4.0 | 4.0 | 3.0 | 3.5 |
| 2 | 13.0 | 11.5 | 12.5 | 8.0 | 7.5 | 8.0 | 7.0 | 4.0 | 6.0 | 3.5 | 3.0 | 3.5 |
| 3 | 12.5 | 12.0 | 12.5 | 9.0 | 7.5 | 8.0 | 7.5 | 5.5 | 7.0 | 4.0 | 3.5 | 4.0 |
| 4 | 12.0 | 11.5 | 12.0 | 9.5 | 8.5 | 9.0 | 5.5 | 5.0 | 5.0 | 4.5 | 4.0 | 4.0 |
| 5 | 11.5 | 10.5 | 11.0 | 9.0 | 8.0 | 8.5 | 5.0 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 |
| 6 | 10.5 | 9.5 | 10.0 | 8.5 | 7.5 | 8.0 | 5.0 | 4.0 | 4.5 | 4.5 | 4.0 | 4.5 |
| 7 | 10.5 | 10.0 | 10.5 | 8.0 | 7.5 | 7.5 | 5.5 | 5.0 | 5.0 | 4.5 | 4.5 | 4.5 |
| 8 | 10.5 | 10.0 | 10.0 | 7.5 | 7.0 | 7.0 | 5.5 | 5.5 | 5.5 | --- | --- | --- |
| 9 | 11.5 | 11.0 | 11.0 | 7.0 | 6.5 | 6.5 | 6.0 | 5.5 | 6.0 | --- | --- | --- |
| 10 | 12.0 | 11.0 | 11.0 | 7.0 | 6.5 | 7.0 | 6.0 | 5.0 | 5.5 | --- | --- | --- |
| 11 | 12.0 | 10.5 | 11.0 | 7.0 | 7.0 | 7.0 | 5.0 | 5.0 | 5.0 | 4.5 | 4.0 | 4.0 |
| 12 | --- | --- | --- | 7.5 | 7.0 | 7.5 | 5.0 | 4.0 | 4.5 | 4.5 | 4.0 | 4.0 |
| 13 | --- | --- | --- | 7.5 | 7.5 | 7.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.0 | 4.0 |
| 14 | --- | --- | --- | --- | --- | --- | 5.0 | 4.5 | 5.0 | 4.0 | 4.0 | 4.0 |
| 15 | 10.5 | 9.5 | 10.0 | --- | --- | --- | 5.5 | 5.0 | 5.0 | 4.5 | 4.0 | 4.0 |
| 16 | 10.0 | 9.0 | 9.5 | --- | --- | --- | 6.0 | 5.5 | 5.5 | 5.0 | 4.5 | 4.5 |
| 17 | 10.5 | 9.5 | 10.0 | --- | --- | --- | 5.5 | 4.0 | 5.0 | 4.5 | 4.0 | 4.5 |
| 18 | 10.0 | 9.5 | 9.5 | 8.5 | 5.5 | 6.5 | 4.0 | 3.5 | 4.0 | 5.0 | 4.5 | 4.5 |
| 19 | 9.5 | 9.0 | 9.0 | --- | --- | --- | 4.0 | 4.0 | 4.0 | 4.5 | 4.0 | 4.0 |
| 20 | 8.5 | 8.0 | 8.5 | --- | --- | --- | 4.5 | 4.0 | 4.0 | 4.0 | 3.5 | 4.0 |
| 21 | 9.0 | 8.5 | 8.5 | --- | --- | --- | 4.5 | 4.0 | 4.0 | 4.5 | 4.0 | 4.0 |
| 22 | 9.0 | 8.5 | 8.5 | 6.5 | 6.0 | 6.5 | 5.0 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 |
| 23 | 9.0 | 8.0 | 8.5 | 6.5 | 6.0 | 6.5 | 5.5 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 |
| 24 | 8.5 | 8.0 | 8.5 | 6.5 | 6.0 | 6.0 | 5.5 | 5.0 | 5.5 | 4.5 | 4.0 | 4.5 |
| 25 | 8.5 | 8.0 | 8.0 | 6.5 | 6.0 | 6.5 | 5.0 | 5.0 | 5.0 | 4.5 | 4.0 | 4.5 |
| 26 | 8.0 | 7.5 | 7.5 | 6.5 | 6.5 | 6.5 | 5.5 | 5.0 | 5.0 | 4.5 | 4.5 | 4.5 |
| 27 | 8.5 | 7.5 | 8.0 | 6.5 | 6.0 | 6.0 | --- | --- | --- | 5.0 | 4.5 | 5.0 |
| 28 | 8.5 | 8.0 | 8.0 | 5.5 | 5.0 | 5.5 | --- | --- | --- | 5.0 | 4.5 | 5.0 |
| 29 | 8.5 | 7.5 | 8.0 | 5.0 | 4.0 | 4.5 | 6.0 | 5.0 | 5.5 | 5.5 | 5.0 | 5.5 |
| 30 | 7.5 | 7.5 | 7.5 | 4.0 | 3.5 | 4.0 | 5.5 | 4.5 | 5.0 | 5.5 | 5.0 | 5.5 |
| 31 | 8.0 | 7.5 | 7.5 | --- | --- | --- | 4.5 | 4.0 | 4.5 | 5.0 | 4.5 | 5.0 |
| MONTH | 13.0 | 7.5 | 9.5 | --- | --- | --- | 7.5 | 3.5 | 5.0 | 5.5 | 3.0 | 4.5 |

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | | | | --- | --- | --- | 5.5 | 4.5 | 5.0 | 9.5 | 8.0 | 8.5 |
| 2 | | | | --- | --- | --- | 6.0 | 4.5 | 5.5 | 8.0 | 6.5 | 7.5 |
| 3 | | | | --- | --- | --- | 7.0 | 5.5 | 6.0 | 7.0 | 6.0 | 6.5 |
| 4 | | | | --- | --- | --- | 7.5 | 6.0 | 7.0 | 7.5 | 7.0 | 7.0 |
| 5 | | | | --- | --- | --- | 7.5 | 6.0 | 7.0 | 7.5 | 7.0 | 7.0 |
| 6 | | | | --- | --- | --- | 7.0 | 6.5 | 6.5 | 8.0 | 6.5 | 7.5 |
| 7 | | | | --- | --- | --- | 6.0 | 5.5 | 6.0 | 9.0 | 8.0 | 8.5 |
| 8 | | | | --- | --- | --- | 6.0 | 5.5 | 6.0 | 9.0 | 8.0 | 8.5 |
| 9 | | | | --- | --- | --- | 7.0 | 5.0 | 6.0 | 8.5 | 7.5 | 8.0 |
| 10 | | | | --- | --- | --- | 7.0 | 6.5 | 7.0 | --- | --- | --- |
| 11 | | | | --- | --- | --- | 7.0 | 5.5 | 6.5 | --- | --- | --- |
| 12 | | | | --- | --- | --- | 6.5 | 5.5 | 6.0 | --- | --- | --- |
| 13 | | | | --- | --- | --- | 7.0 | 6.0 | 6.5 | --- | --- | --- |
| 14 | | | | --- | --- | --- | 6.0 | 5.0 | 5.5 | --- | --- | --- |
| 15 | | | | --- | --- | --- | 5.0 | 4.5 | 5.0 | --- | --- | --- |
| 16 | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | | | | --- | --- | --- | --- | --- | --- | 8.5 | 8.0 | 8.0 |
| 19 | | | | --- | --- | --- | --- | --- | --- | 8.5 | 8.0 | 8.5 |
| 20 | | | | --- | --- | --- | 7.0 | 6.0 | 6.5 | 8.5 | 7.5 | 8.0 |
| 21 | | | | --- | --- | --- | 6.5 | 5.5 | 6.0 | 8.5 | 8.0 | 8.0 |
| 22 | | | | --- | --- | --- | 7.0 | 6.5 | 6.5 | --- | --- | --- |
| 23 | | | | --- | --- | --- | 6.5 | 6.0 | 6.0 | --- | --- | --- |
| 24 | | | | --- | --- | --- | 6.5 | 6.0 | 6.0 | 8.5 | 7.0 | 7.5 |
| 25 | | | | 4.5 | 4.0 | 4.5 | 7.0 | 6.0 | 6.5 | 8.0 | 7.0 | 7.5 |
| 26 | | | | 5.0 | 4.5 | 4.5 | 7.5 | 6.0 | 7.0 | 8.5 | 7.5 | 8.0 |
| 27 | | | | 5.0 | 4.5 | 4.5 | 8.5 | 7.0 | 7.5 | 8.0 | 7.5 | 8.0 |
| 28 | | | | 5.0 | 4.5 | 4.5 | 8.5 | 7.5 | 8.0 | 7.5 | 6.5 | 7.0 |
| 29 | | | | 5.0 | 4.5 | 4.5 | 9.5 | 8.0 | 8.5 | 7.5 | 7.0 | 7.0 |
| 30 | | | | 5.0 | 4.5 | 5.0 | 9.5 | 8.0 | 9.0 | 7.5 | 7.0 | 7.0 |
| 31 | | | | 5.5 | 4.5 | 5.0 | --- | --- | --- | 7.5 | 7.0 | 7.5 |
| MONTH | | | | --- | --- | --- | 9.5 | 4.5 | 6.5 | --- | --- | --- |

## 12199000 SKAGIT RIVER NEAR SEDRO WOOLLEY, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 7.5 | 7.0 | 7.5 | 9.0 | 8.5 | 9.0 | --- | --- | --- | 12.5 | 12.0 | 12.5 |
| 2 | 8.5 | 7.5 | 8.0 | 10.5 | 9.0 | 9.5 | --- | --- | --- | 13.0 | 12.0 | 12.5 |
| 3 | 10.0 | 7.5 | 8.0 | 10.5 | 9.0 | 10.0 | --- | --- | --- | 12.5 | 12.0 | 12.0 |
| 4 | 10.0 | 8.5 | 9.5 | 10.0 | 8.5 | 9.0 | --- | --- | --- | 12.5 | 12.0 | 12.0 |
| 5 | 10.5 | 9.0 | 9.5 | 11.0 | 9.5 | 10.0 | --- | --- | --- | 12.0 | 11.5 | 12.0 |
| 6 | 11.0 | 10.0 | 10.5 | 11.0 | 10.0 | 10.5 | --- | --- | --- | 11.5 | 10.5 | 11.5 |
| 7 | 11.0 | 9.5 | 10.0 | 10.5 | 9.0 | 10.5 | 12.0 | 11.0 | 11.5 | 11.5 | 10.0 | 10.5 |
| 8 | 10.0 | 9.5 | 10.0 | 9.5 | 9.0 | 9.5 | 11.0 | 10.5 | 10.5 | 12.0 | 10.5 | 11.0 |
| 9 | 10.0 | 9.0 | 9.5 | 9.5 | 8.5 | 9.0 | 11.5 | 10.5 | 11.0 | 12.0 | 11.0 | 11.5 |
| 10 | 10.0 | 9.0 | 9.5 | 10.0 | 8.5 | 9.5 | 13.0 | 11.5 | 11.5 | 12.5 | 11.0 | 11.5 |
| 11 | 9.0 | 8.0 | 8.5 | 9.5 | 9.5 | 9.5 | 13.0 | 12.0 | 12.5 | 11.0 | 10.5 | 11.0 |
| 12 | 8.5 | 8.0 | 8.0 | 9.5 | 9.0 | 9.5 | 13.0 | 12.5 | 12.5 | 11.5 | 11.0 | 11.0 |
| 13 | 8.5 | 7.5 | 8.0 | 10.5 | 9.0 | 9.5 | 12.5 | 11.5 | 12.0 | 12.5 | 10.5 | 11.5 |
| 14 | 10.0 | 8.5 | 9.0 | 11.5 | 10.0 | 10.5 | 12.0 | 10.5 | 11.0 | 12.0 | 11.5 | 11.5 |
| 15 | 10.5 | 8.5 | 9.5 | 12.0 | 10.5 | 11.0 | 12.0 | 11.5 | 12.0 | 12.5 | 11.5 | 12.0 |
| 16 | 8.5 | 8.0 | 8.5 | 12.0 | 11.0 | 11.5 | 11.5 | 11.0 | 11.5 | 13.0 | 12.0 | 12.5 |
| 17 | 10.0 | 8.5 | 9.0 | 11.0 | 10.5 | 11.0 | 11.0 | 10.5 | 10.5 | 12.5 | 11.5 | 12.0 |
| 18 | 10.5 | 10.0 | 10.0 | 11.0 | 10.5 | 11.0 | 12.5 | 10.5 | 11.0 | 12.5 | 11.5 | 12.0 |
| 19 | 10.5 | 8.0 | 9.5 | --- | --- | --- | --- | --- | --- | 13.5 | 12.0 | 12.5 |
| 20 | 10.0 | 8.0 | 9.0 | --- | --- | --- | --- | --- | --- | 13.5 | 12.0 | 13.0 |
| 21 | 10.0 | 9.5 | 9.5 | --- | --- | --- | --- | --- | --- | 12.5 | 12.0 | 12.0 |
| 22 | 9.0 | 8.0 | 8.5 | --- | --- | --- | --- | --- | --- | 12.5 | 12.0 | 12.5 |
| 23 | 9.0 | 8.0 | 8.5 | --- | --- | --- | 12.0 | 11.0 | 11.5 | 12.0 | 11.5 | 12.0 |
| 24 | 9.0 | 8.5 | 8.5 | --- | --- | --- | 12.0 | 11.5 | 11.5 | 13.0 | 11.5 | 12.0 |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 13.5 | 12.0 | 13.0 |
| 26 | 10.5 | 8.5 | 9.5 | --- | --- | --- | --- | --- | --- | 13.5 | 12.0 | 13.0 |
| 27 | 11.5 | 9.5 | 10.5 | 12.0 | 11.0 | 11.0 | --- | --- | --- | 13.5 | 12.0 | 12.5 |
| 28 | 11.5 | 10.5 | 11.0 | 12.0 | 11.0 | 11.5 | --- | --- | --- | 13.5 | 12.0 | 12.5 |
| 29 | 11.0 | 9.5 | 10.5 | 12.0 | 11.0 | 11.5 | 12.5 | 12.0 | 12.0 | 13.5 | 12.0 | 12.5 |
| 30 | 9.5 | 9.0 | 9.5 | 11.5 | 11.0 | 11.0 | 13.0 | 11.5 | 12.0 | 13.0 | 12.0 | 12.5 |
| 31 | --- | --- | --- | 12.0 | 11.0 | 11.5 | 13.5 | 12.0 | 12.5 | --- | --- | --- |
| MONTH | 11.5 | 7.0 | 9.0 | --- | --- | --- | --- | --- | --- | 13.5 | 10.0 | 12.0 |
| YEAR | 13.5 | 3.0 | 8.0 | | | | | | | | | |

### DISSOLVED OXYGEN (DO), MG/L, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 10.7 | 10.0 | 10.4 | --- | --- | --- | 12.3 | 11.6 | 11.8 | 12.9 | 12.7 | 12.8 |
| 2 | 10.7 | 10.1 | 10.5 | 11.7 | 11.4 | 11.5 | 12.3 | 11.1 | 11.5 | 12.9 | 12.7 | 12.8 |
| 3 | 10.8 | 10.2 | 10.5 | 11.7 | 11.0 | 11.4 | 12.6 | 12.2 | 12.4 | 12.7 | 12.4 | 12.6 |
| 4 | 11.2 | 10.2 | 10.7 | --- | --- | --- | 12.7 | 12.3 | 12.5 | 12.5 | 12.3 | 12.4 |
| 5 | 11.1 | 10.9 | 11.0 | --- | --- | --- | 13.3 | 12.7 | 13.0 | 12.4 | 12.3 | 12.3 |
| 6 | 11.3 | 11.1 | 11.2 | --- | --- | --- | 13.1 | 12.0 | 12.5 | 12.5 | 12.3 | 12.4 |
| 7 | 11.1 | 10.9 | 11.0 | --- | --- | --- | 13.1 | 12.1 | 12.6 | 12.5 | 12.3 | 12.4 |
| 8 | 10.9 | 10.7 | 10.8 | 11.4 | 11.3 | 11.5 | 13.3 | 12.9 | 13.1 | --- | --- | --- |
| 9 | 11.5 | 11.1 | 11.3 | 12.1 | 11.8 | 12.0 | 13.1 | 12.8 | 13.0 | --- | --- | --- |
| 10 | 11.1 | 10.9 | 11.0 | 12.2 | 11.3 | 11.7 | 13.0 | 11.4 | 12.0 | --- | --- | --- |
| 11 | 10.9 | 10.7 | 10.8 | --- | --- | --- | 13.0 | 10.9 | 12.5 | 12.4 | 11.9 | 12.2 |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 12.2 | 12.0 | 12.1 |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 12.6 | 11.9 | 12.3 |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 12.7 | 12.5 | 12.6 |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 13.1 | 12.8 | 12.9 |
| 16 | 10.7 | 10.5 | 10.6 | --- | --- | --- | --- | --- | --- | 13.1 | 12.8 | 13.0 |
| 17 | --- | --- | --- | --- | --- | --- | 12.9 | 12.3 | 12.6 | 13.0 | 12.5 | 12.7 |
| 18 | --- | --- | --- | --- | --- | --- | 13.1 | 12.2 | 12.6 | 12.6 | 12.5 | 12.5 |
| 19 | 11.8 | 11.2 | 11.6 | --- | --- | --- | 12.6 | 11.6 | 12.2 | 12.7 | 12.6 | 12.7 |
| 20 | 12.0 | 11.6 | 11.8 | --- | --- | --- | 12.9 | 11.8 | 12.3 | 12.8 | 12.6 | 12.7 |
| 21 | 11.9 | 11.4 | 11.6 | --- | --- | --- | 12.6 | 12.0 | 12.2 | 12.7 | 12.5 | 12.6 |
| 22 | 11.7 | 11.3 | 11.5 | 11.8 | 11.6 | 11.7 | 12.4 | 11.9 | 12.2 | 12.6 | 12.3 | 12.5 |
| 23 | 12.0 | 11.0 | 11.6 | 12.0 | 11.6 | 11.8 | 12.4 | 11.8 | 12.2 | 12.6 | 12.3 | 12.5 |
| 24 | 11.7 | 11.2 | 11.5 | 12.2 | 12.0 | 12.1 | 12.2 | 11.8 | 12.1 | 12.5 | 12.3 | 12.4 |
| 25 | 11.6 | 10.9 | 11.2 | 12.1 | 11.2 | 11.8 | 12.4 | 11.0 | 12.0 | 12.5 | 12.3 | 12.4 |
| 26 | 11.1 | 11.0 | 11.0 | 11.1 | 10.9 | 11.0 | 12.5 | 11.4 | 12.0 | 12.4 | 12.2 | 12.3 |
| 27 | 11.1 | 10.8 | 11.0 | 11.2 | 11.1 | 11.2 | --- | --- | --- | 13.0 | 12.2 | 12.4 |
| 28 | 10.9 | 10.7 | 10.8 | 11.8 | 11.2 | 11.5 | --- | --- | --- | 12.6 | 12.2 | 12.4 |
| 29 | 11.4 | 10.9 | 11.1 | 12.1 | 11.8 | 11.9 | 12.4 | 11.9 | 12.0 | 12.3 | 12.0 | 12.1 |
| 30 | 11.7 | 11.3 | 11.5 | 12.1 | 11.6 | 11.7 | 12.3 | 11.9 | 12.1 | 12.4 | 12.3 | 12.3 |
| 31 | 11.5 | 10.9 | 11.2 | --- | --- | --- | 12.7 | 12.2 | 12.3 | 12.5 | 10.7 | 12.1 |
| MONTH | 12.0 | 10.0 | 11.1 | --- | --- | --- | --- | --- | --- | 13.1 | 10.7 | 12.5 |

### 12199000 SKAGIT RIVER NEAR SEDRO WOOLLEY, WA--Continued

### DISSOLVED OXYGEN (DO), MG/L, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 13.2 | 11.0 | 12.1 | --- | --- | --- | 12.4 | 12.2 | 12.3 | 11.7 | 11.2 | 11.4 |
| 2 | --- | --- | --- | --- | --- | --- | 12.4 | 12.1 | 12.2 | 12.0 | 11.4 | 11.6 |
| 3 | --- | --- | --- | --- | --- | --- | 12.1 | 11.7 | 11.9 | 12.0 | 11.7 | 11.9 |
| 4 | --- | --- | --- | --- | --- | --- | 11.8 | 11.4 | 11.6 | 11.8 | 11.5 | 11.6 |
| 5 | --- | --- | --- | --- | --- | --- | 11.7 | 11.4 | 11.6 | 12.1 | 11.6 | 11.8 |
| 6 | --- | --- | --- | --- | --- | --- | 11.8 | 11.3 | 11.6 | 12.2 | 12.0 | 12.1 |
| 7 | --- | --- | --- | --- | --- | --- | 12.4 | 11.5 | 11.8 | 11.9 | 11.6 | 11.7 |
| 8 | --- | --- | --- | --- | --- | --- | 12.0 | 11.7 | 11.8 | 11.7 | 11.4 | 11.5 |
| 9 | --- | --- | --- | --- | --- | --- | 12.0 | 11.8 | 11.9 | 11.8 | 11.1 | 11.5 |
| 10 | --- | --- | --- | --- | --- | --- | 11.9 | 11.5 | 11.7 | 11.6 | 11.2 | 11.4 |
| 11 | --- | --- | --- | --- | --- | --- | 12.1 | 11.6 | 11.8 | --- | --- | --- |
| 12 | --- | --- | --- | --- | --- | --- | 12.2 | 12.0 | 12.1 | --- | --- | --- |
| 13 | --- | --- | --- | --- | --- | --- | 12.2 | 11.8 | 12.0 | --- | --- | --- |
| 14 | --- | --- | --- | --- | --- | --- | 12.3 | 12.0 | 12.1 | --- | --- | --- |
| 15 | --- | --- | --- | --- | --- | --- | 12.5 | 12.2 | 12.3 | --- | --- | --- |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | --- | --- | --- | --- | --- | --- | 12.0 | 11.7 | 11.8 | --- | --- | --- |
| 21 | --- | --- | --- | --- | --- | --- | 12.2 | 12.0 | 12.1 | --- | --- | --- |
| 22 | --- | --- | --- | --- | --- | --- | 12.0 | 11.5 | 11.8 | --- | --- | --- |
| 23 | --- | --- | --- | --- | --- | --- | 12.2 | 11.9 | 12.0 | --- | --- | --- |
| 24 | --- | --- | --- | 12.5 | 12.4 | 12.5 | 12.1 | 11.8 | 12.0 | 11.4 | 11.1 | 11.3 |
| 25 | --- | --- | --- | 12.4 | 11.9 | 12.2 | 12.2 | 11.8 | 12.0 | 11.9 | 11.2 | 11.7 |
| 26 | --- | --- | --- | 12.3 | 11.9 | 12.1 | 12.2 | 11.8 | 12.0 | 11.9 | 11.0 | 11.4 |
| 27 | --- | --- | --- | 12.0 | 11.5 | 11.7 | 12.1 | 11.5 | 11.7 | 11.8 | 11.4 | 11.6 |
| 28 | --- | --- | --- | 12.2 | 11.7 | 11.8 | 11.9 | 11.1 | 11.5 | 12.0 | 11.1 | 11.7 |
| 29 | --- | --- | --- | 12.5 | 12.0 | 12.2 | 11.6 | 11.4 | 11.5 | 12.0 | 11.3 | 11.7 |
| 30 | --- | --- | --- | 12.5 | 12.0 | 12.2 | 11.8 | 11.3 | 11.5 | 11.7 | 11.3 | 11.5 |
| 31 | --- | --- | --- | 12.3 | 12.1 | 12.2 | --- | --- | --- | 11.6 | 11.4 | 11.5 |
| MONTH | --- | --- | --- | --- | --- | --- | 12.5 | 11.1 | 11.9 | --- | --- | --- |

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 11.7 | 11.6 | 11.7 | 11.6 | 11.4 | 11.5 | 11.0 | 10.4 | 10.8 | 12.3 | 12.0 | 12.2 |
| 2 | 11.7 | 11.5 | 11.6 | 11.6 | 11.4 | 11.5 | --- | --- | --- | 12.3 | 11.6 | 11.9 |
| 3 | --- | --- | --- | 11.4 | 11.0 | 11.2 | --- | --- | --- | 12.3 | 11.9 | 12.1 |
| 4 | --- | --- | --- | 11.5 | 11.4 | 11.4 | --- | --- | --- | 12.0 | 11.5 | 11.7 |
| 5 | --- | --- | --- | 11.4 | 11.2 | 11.3 | --- | --- | --- | 11.7 | 11.4 | 11.5 |
| 6 | --- | --- | --- | 11.3 | 10.8 | 11.1 | --- | --- | --- | 11.9 | 11.6 | 11.7 |
| 7 | --- | --- | --- | 11.5 | 10.9 | 11.0 | 11.3 | 11.0 | 11.2 | 12.1 | 11.7 | 11.9 |
| 8 | --- | --- | --- | 11.4 | 11.3 | 11.4 | 11.4 | 11.0 | 11.2 | 12.3 | 11.6 | 11.9 |
| 9 | --- | --- | --- | 11.6 | 11.4 | 11.5 | 11.4 | 11.1 | 11.2 | 12.2 | 11.6 | 11.9 |
| 10 | 11.6 | 11.1 | 11.4 | 11.6 | 11.4 | 11.5 | 11.4 | 11.0 | 11.2 | 11.7 | 11.0 | 11.3 |
| 11 | 11.6 | 11.3 | 11.5 | 11.4 | 11.3 | 11.3 | 11.1 | 10.7 | 10.9 | 11.5 | 10.9 | 11.2 |
| 12 | 11.6 | 11.4 | 11.5 | 11.4 | 11.2 | 11.3 | 10.9 | 10.6 | 10.7 | 11.4 | 11.1 | 11.3 |
| 13 | 11.7 | 11.5 | 11.6 | 11.3 | 11.1 | 11.2 | 10.7 | 10.4 | 10.5 | 11.3 | 11.0 | 11.1 |
| 14 | 11.6 | 11.2 | 11.4 | 11.1 | 11.0 | 11.0 | 11.0 | 10.5 | 10.8 | 11.9 | 10.9 | 11.3 |
| 15 | 11.2 | 10.8 | 11.0 | 11.9 | 10.8 | 11.1 | 10.9 | 10.5 | 10.7 | 11.8 | 11.5 | 11.6 |
| 16 | 11.8 | 11.2 | 11.4 | 12.0 | 11.7 | 11.8 | 10.8 | 10.4 | 10.6 | 11.6 | 11.0 | 11.3 |
| 17 | 11.7 | 11.4 | 11.6 | 11.8 | 11.6 | 11.7 | 10.9 | 10.7 | 10.8 | 11.7 | 11.1 | 11.3 |
| 18 | 11.4 | 11.1 | 11.3 | --- | --- | --- | --- | --- | --- | 11.7 | 11.3 | 11.5 |
| 19 | 11.7 | 11.1 | 11.3 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | 11.7 | 11.5 | 11.6 | --- | --- | --- | 11.4 | 11.0 | 11.2 | --- | --- | --- |
| 21 | 11.6 | 11.3 | 11.4 | --- | --- | --- | 11.3 | 10.7 | 11.0 | --- | --- | --- |
| 22 | 11.6 | 11.2 | 11.4 | --- | --- | --- | 11.1 | 10.9 | 10.9 | --- | --- | --- |
| 23 | 11.6 | 11.4 | 11.5 | --- | --- | --- | 10.9 | 10.4 | 10.6 | --- | --- | --- |
| 24 | 11.6 | 10.8 | 11.2 | --- | --- | --- | 10.8 | 10.4 | 10.5 | --- | --- | --- |
| 25 | 11.6 | 11.6 | 11.6 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26 | 11.6 | 11.2 | 11.4 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | 11.3 | 11.0 | 11.1 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | 11.1 | 10.8 | 11.0 | 11.3 | 10.7 | 11.0 | --- | --- | --- | --- | --- | --- |
| 29 | 11.2 | 10.8 | 11.0 | 11.0 | 10.3 | 10.6 | --- | --- | --- | --- | --- | --- |
| 30 | 11.6 | 11.1 | 11.3 | 11.4 | 10.4 | 11.0 | --- | --- | --- | --- | --- | --- |
| 31 | --- | --- | --- | 11.3 | 10.8 | 10.9 | --- | --- | --- | --- | --- | --- |
| MONTH | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| YEAR | 13.3 | 10.0 | 11.7 | | | | | | | | | |

## 12199000 SKAGIT RIVER NEAR SEDRO WOOLLEY, WA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Time | Istantaneous-discharge (cfs) | Specific conductance (micro-mhos) | Ph (Units) | Temperature (Deg. C) | Dissolved oxygen (mg/l) |
|---|---|---|---|---|---|---|
| Oct. | | | | | | |
| 08... | 1020 | ---- | 41 | 6.9 | 10.1 | 10.9 |
| 11... | 1600 | 8,950 | -- | --- | 10.9 | 10.9 |
| 14... | 1600 | 5,300 | -- | --- | 10.6 | 11.1 |
| 15... | 0900 | 6,920 | -- | 7.9 | 9.9 | 10.8 |
| 18... | 1600 | 48,600 | -- | 7.0 | 10.1 | 10.8 |
| 21... | 1900 | 21,400 | -- | 7.0 | 9.1 | 11.6 |
| 25... | 1200 | 15,300 | -- | 7.6 | 8.3 | 11.2 |
| 29... | 1200 | 18,700 | -- | 7.0 | 8.1 | 11.2 |
| Nov. | | | | | | |
| 01... | 1100 | 22,300 | -- | 7.2 | 8.2 | 11.4 |
| 03... | 0900 | 41,700 | -- | 7.3 | 7.8 | 11.6 |
| 07... | 0900 | 34,900 | -- | 7.4 | 7.7 | 11.6 |
| 10... | 1500 | 21,700 | -- | 7.2 | 7.1 | 11.6 |
| 13... | 1035 | 121,700 | -- | 7.2 | 7.4 | 11.3 |
| 16... | 1100 | 36,700 | 26 | 7.1 | 6.0 | 11.8 |
| 19... | 1700 | 23,400 | -- | --- | --- | --- |
| 22... | 1000 | 18,800 | 56 | 7.3 | 6.5 | 11.7 |
| 25... | 1800 | 35,600 | 40 | 7.3 | 6.4 | 12.0 |
| 28... | 1100 | 23,600 | 50 | 7.1 | 5.2 | 11.5 |
| Dec. | | | | | | |
| 01... | 2100 | 34,700 | 40 | --- | 4.5 | 12.4 |
| 06... | 1100 | 62,200 | 50 | 7.2 | 4.6 | 12.6 |
| 10... | 1200 | 41,300 | 65 | 7.3 | 5.7 | 12.1 |
| 13... | 0900 | 77,400 | 42 | 7.1 | 4.4 | 12.4 |
| 17... | 1700 | 18,600 | 51 | 7.2 | 4.4 | 12.6 |
| 20... | 0800 | 19,200 | 57 | 7.4 | 4.0 | 12.3 |
| 25... | 1400 | 17,800 | 54 | 7.4 | 5.0 | 12.3 |
| 28... | 1700 | 25,000 | -- | --- | 5.1 | 12.4 |
| 31... | 1900 | 24,500 | 44 | 6.8 | 4.1 | 12.6 |
| Jan. | | | | | | |
| 03... | 1600 | 18,000 | 50 | 7.3 | 4.1 | 12.5 |
| 06... | 1600 | 20,800 | 46 | --- | 4.6 | 12.4 |
| 10... | 1100 | 18,000 | 51 | 7.0 | 4.7 | 12.4 |
| 13... | 1600 | 16,400 | 55 | 7.6 | 4.2 | 12.6 |
| 17... | 1000 | 32,400 | 38 | 8.2 | 4.4 | 12.7 |
| 20... | 1700 | 22,200 | 48 | 7.7 | 4.1 | 12.6 |
| 23... | 2100 | 24,000 | 50 | 7.5 | 4.5 | 12.5 |
| 27... | 1600 | 35,900 | 35 | 8.0 | 5.1 | 12.6 |
| Feb. | | | | | | |
| 01... | 1900 | 18,700 | -- | --- | --- | --- |
| Mar. | | | | | | |
| 24... | 1235 | ---- | 52 | 8.6 | 4.4 | 12.4 |
| 29... | 1700 | 16,900 | 58 | 7.5 | 4.5 | 12.6 |
| Apr. | | | | | | |
| 02... | 1800 | 16,700 | 59 | 7.4 | 6.0 | 12.3 |
| 07... | 1700 | 17,400 | 54 | 7.3 | 6.2 | 12.1 |
| 12... | 1600 | 17,800 | 50 | 7.5 | 6.7 | 12.0 |
| 15... | 1600 | 19,700 | 56 | 7.6 | 5.1 | 12.3 |
| 19... | 1700 | 13,700 | 58 | 7.4 | 7.4 | 11.9 |
| 22... | 1800 | 13,700 | 60 | 7.6 | 7.2 | 11.8 |
| 25... | 1100 | 14,400 | 58 | 7.5 | 6.3 | 12.1 |
| 28... | 1800 | 12,400 | 58 | 7.6 | 9.0 | 11.6 |
| May | | | | | | |
| 02... | 1700 | 25,100 | 38 | 7.5 | 7.4 | 11.8 |
| 05... | 1800 | 24,500 | 46 | 7.6 | 7.5 | 12.0 |
| 09... | 1000 | 29,100 | 38 | 7.7 | 8.0 | 11.6 |
| 12... | 1900 | 27,900 | -- | --- | --- | --- |
| 19... | 1100 | 18,800 | 37 | 7.6 | 8.4 | 11.3 |
| 23... | 1700 | 24,400 | 42 | 7.6 | 9.0 | 11.3 |
| 26... | 1600 | 21,200 | 44 | --- | 8.4 | 11.6 |
| 30... | 0900 | 23,900 | 43 | 6.8 | 7.4 | 11.6 |
| June | | | | | | |
| 02... | 0900 | 22,800 | 45 | 7.5 | 7.8 | 11.6 |
| 03... | 1215 | 18,200 | 48 | 7.4 | 9.6 | 12.3 |
| 06... | 1700 | 18,200 | 50 | 7.3 | 10.8 | 11.1 |
| 09... | 1900 | 24,200 | 37 | 7.7 | 10.2 | 11.4 |
| 13... | 1200 | 19,200 | 37 | 7.6 | 7.9 | 11.7 |
| 16... | 1100 | 30,600 | 31 | --- | 8.4 | 11.6 |
| 20... | 1900 | 29,600 | 30 | 7.3 | 10.0 | 11.6 |
| 22... | 1200 | 22,700 | 37 | 6.9 | 8.2 | 11.3 |
| 23... | 1400 | 21,300 | 34 | --- | 8.6 | 11.6 |
| 27... | 1300 | 19,900 | 39 | --- | 10.8 | 11.2 |
| 30... | 1000 | 31,000 | 32 | --- | 9.4 | 11.3 |
| July | | | | | | |
| 04... | 0900 | 23,900 | 35 | --- | 8.9 | 11.5 |
| 07... | 1700 | 31,600 | 29 | --- | 9.8 | 11.2 |
| 11... | 2000 | 30,700 | 39 | --- | 9.6 | 11.3 |
| 15... | 1700 | 29,400 | 36 | --- | 11.8 | 11.5 |
| 27... | 1700 | 26,400 | 32 | 7.4 | 11.6 | 11.0 |
| 30... | 1000 | 23,100 | 30 | --- | 11.2 | 10.9 |
| Aug. | | | | | | |
| 02... | 1500 | 29,800 | 34 | --- | 11.6 | 11.3 |
| 06... | 1000 | 23,900 | 32 | --- | 10.5 | 11.0 |
| 10... | 1800 | 22,000 | 34 | --- | 12.7 | 11.0 |
| 14... | 0800 | 21,900 | 35 | --- | 10.6 | 10.8 |
| 17... | 1400 | 19,000 | 32 | --- | 10.8 | 11.0 |
| 21... | 1600 | 18,000 | 30 | --- | 12.4 | 10.8 |
| 25... | 1000 | 20,500 | 40 | --- | 11.6 | 10.8 |
| 28... | 1500 | 17,100 | 36 | --- | 12.2 | 11.4 |
| 31... | 1700 | 15,600 | 38 | --- | 13.3 | 11.9 |
| Sept. | | | | | | |
| 04... | 1600 | 13,100 | 46 | --- | 12.3 | 11.6 |
| 08... | 1600 | 15,000 | 36 | --- | 11.7 | 12.0 |
| 11... | 1800 | 12,400 | 42 | --- | 10.8 | 11.4 |
| 14... | 1700 | 11,800 | 44 | --- | 12.1 | 11.7 |
| 18... | 1700 | 12,000 | 44 | --- | 12.5 | 11.1 |
| 24... | 1500 | 8,000 | 48 | --- | 12.9 | 11.1 |
| 28... | 1700 | 10,300 | 40 | --- | 13.4 | 11.1 |

## 12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 48°26'42", long 122°20'03", in SE¼SE¼ sec.7, T.34 N., R.4 E., Skagit County, Hydrologic Unit 17110007, on draw rest of and 150 ft (46 m) downstream from bridge on former U.S. Highway 99, 1.5 mi (2.4 km) north of Skagit Valley Junior College in Mount Vernon, and at mile 15.7 (25.3 km). Water quality data obtained at the U.S. Interstate 5 bridge 1,200 ft (370 m) downstream from gage.

DRAINAGE AREA.--3,093 mi$^2$ (8,011 km$^2$), of which 400 mi$^2$ (1,036 km$^2$) is in Canada.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1940 to current year. Monthly discharge only October 1940, published in WSP 1316.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is at mean sea level. Supplementary water-stage recorder in bridge pier 0.2 mi (0.3 km) downstream from base gage Dec. 3, 1957, to Oct. 15, 1964.

REMARKS.--Water discharge records good. Flow regulated for powerplants on Baker and upper Skagit Rivers by Ross Reservoir; (see sta 12175000) and by Diablo and Gorge Reservoirs, Baker Lake and Lake Shannon (see pp. 273,274). Small diversions for domestic and municipal use.

AVERAGE DISCHARGE.--36 years, 16,980 ft$^3$/s (480.9 m$^3$/s), 12,300,000 acre-ft (15,200 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 144,000 ft$^3$/s (4,080 m$^3$/s) Feb. 11, 1951, elevation, 36.85 ft (11.232 m); minimum, 2,740 ft$^3$/s (77.6 m$^3$/s) Oct. 26, 1942, elevation, 7.37 ft (2.246 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1906 reached a stage of 37 ft (11.3 m), from Great Northern Railway high-water profile, discharge 180,000 ft$^3$/s (5,100 m$^3$/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50,000 ft$^3$/s (1,420 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 18 | 1300 | 57,100 | 1,620 | 25.89 | 7.891 | Dec. 4 | 1930 | *130,000 | 3,680 | *35.66 | 10.869 |
| Nov. 15 | 2130 | 54,000 | 1,530 | 25.22 | 7.687 | | | | | | |

Minimum discharge, 4,350 ft$^3$/s (123 m$^3$/s) Oct. 2, elevation 8.86 ft (2.701 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5230 | 24300 | 29000 | 23200 | 18900 | 15000 | 16300 | 17700 | 23200 | 28500 | 25400 | 15200 |
| 2 | 5580 | 25100 | 55800 | 21100 | 19000 | 14800 | 15400 | 22700 | 23100 | 27800 | 28900 | 16100 |
| 3 | 5560 | 40800 | 97800 | 19400 | 18900 | 14100 | 12900 | 25600 | 20300 | 23900 | 27200 | 15500 |
| 4 | 10500 | 46000 | 123000 | 20800 | 18400 | 14200 | 11400 | 22500 | 19400 | 23000 | 24500 | 13200 |
| 5 | 11900 | 41000 | 102000 | 25800 | 18200 | 13700 | 12800 | 24000 | 18900 | 23800 | 23300 | 16400 |
| 6 | 16100 | 37900 | 63400 | 22800 | 17900 | 13200 | 16100 | 24400 | 18600 | 26400 | 23100 | 24100 |
| 7 | 12200 | 36300 | 51700 | 20700 | 16900 | 13700 | 16000 | 22000 | 20200 | 31600 | 25900 | 18100 |
| 8 | 10900 | 33100 | 51600 | 21100 | 15800 | 13500 | 16100 | 26200 | 22800 | 36400 | 27500 | 16300 |
| 9 | 10000 | 29000 | 60000 | 20600 | 15200 | 13600 | 19200 | 28500 | 24000 | 36000 | 23700 | 14200 |
| 10 | 10600 | 24900 | 47100 | 20000 | 16800 | 14100 | 18100 | 30800 | 26100 | 33800 | 23600 | 12600 |
| 11 | 10500 | 21400 | 33800 | 19700 | 16900 | 14000 | 20500 | 33800 | 23700 | 33400 | 20100 | 12600 |
| 12 | 8370 | 19400 | 29200 | 19600 | 20100 | 12100 | 19800 | 32400 | 24500 | 29700 | 20800 | 11000 |
| 13 | 6850 | 18400 | 26700 | 18100 | 18200 | 12100 | 17400 | 27400 | 22000 | 28900 | 22200 | 9980 |
| 14 | 6260 | 27700 | 22300 | 17500 | 16800 | 11200 | 17300 | 28300 | 18700 | 26200 | 21500 | 11800 |
| 15 | 9990 | 45400 | 22300 | 27500 | 17000 | 11200 | 19400 | 24200 | 20300 | 28400 | 16800 | 11900 |
| 16 | 11600 | 42300 | 20700 | 39000 | 18600 | 10300 | 16000 | 20300 | 28200 | 31600 | 19000 | 11900 |
| 17 | 27900 | 31800 | 19600 | 33800 | 19000 | 10700 | 12700 | 24400 | 30400 | 33200 | 19800 | 11900 |
| 18 | 52300 | 27800 | 18600 | 24400 | 19000 | 13300 | 13400 | 23600 | 29800 | 34300 | 19200 | 11600 |
| 19 | 33700 | 25700 | 17900 | 24700 | 18100 | 15400 | 13200 | 20200 | 32000 | 33200 | 19000 | 11000 |
| 20 | 31300 | 23500 | 17200 | 23800 | 17100 | 15300 | 14600 | 22100 | 32100 | 31600 | 22900 | 11200 |
| 21 | 25000 | 22900 | 16100 | 20500 | 15400 | 13100 | 16900 | 21900 | 27700 | 30600 | 19700 | 10900 |
| 22 | 21400 | 20300 | 15300 | 19000 | 14600 | 12600 | 14100 | 21500 | 23400 | 27900 | 16600 | 10400 |
| 23 | 19500 | 24600 | 15200 | 19200 | 15100 | 17200 | 13700 | 23600 | 22200 | 26200 | 14200 | 9670 |
| 24 | 16800 | 43000 | 18400 | 18100 | 16000 | 17100 | 13400 | 24000 | 20300 | 29400 | 15500 | 9170 |
| 25 | 16700 | 44000 | 19700 | 17600 | 16900 | 19700 | 13900 | 26100 | 21400 | 31700 | 19800 | 8730 |
| 26 | 20200 | 36700 | 27200 | 16900 | 16300 | 18200 | 13800 | 23600 | 21700 | 30300 | 24200 | 8880 |
| 27 | 19300 | 30600 | 41100 | 25600 | 15300 | 16600 | 13800 | 26800 | 19400 | 28600 | 19400 | 9130 |
| 28 | 17600 | 24500 | 28400 | 28600 | 15700 | 14800 | 13100 | 33600 | 20300 | 23200 | 17400 | 9380 |
| 29 | 19800 | 22500 | 25400 | 21200 | 15000 | 15400 | 13100 | 27800 | 26300 | 21600 | 17900 | 9350 |
| 30 | 34100 | 20500 | 32000 | 21900 | --- | 15700 | 14700 | 23700 | 30300 | 23400 | 16200 | 9160 |
| 31 | 30100 | --- | 27300 | 20100 | --- | 16200 | --- | 19800 | --- | 26300 | 15800 | --- |
| TOTAL | 537840 | 911400 | 1175800 | 696300 | 497100 | 442100 | 459100 | 771500 | 711300 | 900900 | 650800 | 371350 |
| MEAN | 17350 | 30380 | 37930 | 22460 | 17140 | 14260 | 15300 | 24890 | 23710 | 29060 | 20990 | 12380 |
| MAX | 52300 | 46000 | 123000 | 39000 | 20100 | 19700 | 20500 | 33800 | 32100 | 36400 | 28900 | 24100 |
| MIN | 5230 | 18400 | 15200 | 16900 | 14600 | 10300 | 11400 | 17700 | 18600 | 21600 | 14200 | 8730 |
| AC-FT | 1067000 | 1808000 | 2332000 | 1381000 | 986000 | 876900 | 910600 | 1530000 | 1411000 | 1787000 | 1291000 | 736600 |

CAL YR 1975 TOTAL 7247950 MEAN 19860 MAX 123000 MIN 4700 AC-FT 14380000
WTR YR 1976 TOTAL 8125490 MEAN 22200 MAX 123000 MIN 5230 AC-FT 16120000

## 12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-70, 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1974 to current year.
WATER TEMPERATURE: July 1962 to Aug. 1970, February 1974 to current year.

INSTRUMENTATION.--Water-quality monitor since February 1974.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. In addition to the water-quality record, samples were collected quarterly.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 74 micromhos Mar. 16, 1976; minimum, 25 micromhos July 7, 1975.
WATER TEMPERATURES: Maximum, 17.5°C Aug. 13, 14, 1975; minimum, 1.0°C Jan. 28 to Feb. 1, 1969.

EXTREMES OUTSIDE PERIOD OF DAILY RECORD.--A water temperature of 17.8°C was observed on Aug. 3, 1961.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 74 micromhos Mar. 16; minimum, 29 micromhos Oct. 17, July 7.
WATER TEMPERATURES: Maximum, 14.5°C July 15, 24, Sept. 20; minimum recorded, 3.0°C Dec. 21, Jan. 2, 20, Mar. 13.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | STREPTOCOCCI (COLONIES PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 16... | 1100 | 10200 | 39 | 7.1 | 9.8 | 4 | 1100 | 100 | -- | 17 | 4 | 5.4 |
| NOV 18... | 1015 | 29600 | 46 | 7.5 | 5.4 | 7 | 530 | 88 | 10 | 23 | 2 | 6.9 |
| DEC 18... | 1230 | 18600 | 55 | 6.7 | 3.5 | 10 | 20 | <1 | <1 | 27 | 2 | 8.0 |
| JAN 14... | 1120 | 17300 | 52 | 7.0 | 3.6 | 8 | 120 | 78 | 32 | 28 | 2 | 7.9 |
| FEB 18... | 1140 | 18600 | 51 | 7.2 | 3.7 | 10 | 110 | -- | 10 | 27 | 4 | 7.6 |
| MAR 16... | 1025 | 9370 | 66 | 7.1 | 4.8 | 2 | 27 | 10 | <1 | 32 | 2 | 9.0 |
| APR 20... | 1130 | 14300 | 58 | 6.7 | 6.6 | 7 | 260 | 140 | B10 | 27 | 2 | 8.0 |
| MAY 18... | 1425 | 22000 | 52 | 7.2 | 8.2 | 5 | B73 | 6 | 2 | 19 | 0 | 6.1 |
| JUN 16... | 1415 | 30500 | 38 | 7.1 | 8.8 | 10 | B960 | 220 | 880 | 16 | 1 | 4.8 |
| JUL 15... | 0800 | 27400 | 38 | 7.2 | 12.9 | 9 | 450 | 23 | 1400 | 20 | 3 | 6.5 |
| AUG 18... | 1155 | 18500 | 42 | 7.8 | 11.1 | 4 | 27 | B17 | 57 | 20 | 2 | 6.2 |
| SEP 22... | 1020 | 9440 | 42 | 7.8 | 12.3 | 4 | 370 | B160 | 240 | 20 | 0 | 6.1 |

| DATE | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED FLUORIDE (F) (MG/L) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L) | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 16... | .8 | 1.1 | .5 | 16 | 13 | 2.0 | 4.5 | 1.7 | .1 | 5.2 | 32 | 27 |
| NOV 18... | 1.3 | 1.3 | .5 | 25 | 21 | 1.3 | 4.1 | 1.4 | .1 | 6.3 | 30 | 34 |
| DEC 18... | 1.7 | 1.6 | .4 | 31 | 25 | 9.9 | 4.0 | .6 | .0 | 7.0 | 49 | 39 |
| JAN 14... | 2.1 | 1.4 | .5 | 32 | 26 | 5.1 | 4.0 | .9 | .2 | 6.6 | 36 | 39 |
| FEB 18... | 1.9 | 1.5 | .7 | 28 | 23 | 2.8 | 4.4 | 1.0 | .0 | 6.4 | 33 | 37 |
| MAR 16... | 2.2 | 2.6 | .6 | 36 | 30 | 4.6 | 5.1 | 1.6 | .1 | 7.4 | 51 | 46 |
| APR 20... | 1.6 | 1.6 | .6 | 30 | 25 | 9.6 | 5.0 | .7 | .0 | 7.0 | 42 | 39 |
| MAY 18... | 1.0 | .8 | .4 | 25 | 21 | 2.5 | 4.1 | .6 | .1 | 5.3 | 29 | 31 |
| JUN 16... | 1.0 | .9 | .4 | 18 | 15 | 2.3 | 4.6 | .8 | .1 | 4.7 | 26 | 26 |
| JUL 15... | 1.0 | .8 | .5 | 21 | 17 | 2.1 | 4.1 | .5 | .2 | 5.0 | 52 | 29 |
| AUG 18... | 1.0 | .9 | .4 | 22 | 18 | .6 | 4.4 | .8 | .1 | 4.7 | 29 | 29 |
| SEP 22... | 1.1 | 1.2 | .5 | 24 | 20 | .6 | 5.7 | 1.0 | .1 | 5.2 | 41 | 33 |

B Results based upon colony counts outside the ideal range.

## 12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TOTAL NON-FILT-RABLE RESIDUE (MG/L) | SUS-PENDED SOLIDS (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | SUS-PENDED SEDI-MENT (MG/L) | SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY) | SUS. SED. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 15... | -- | -- | .08 | .00 | .08 | .04 | .17 | .03 | .01 | 32 | 881 | 48 |
| NOV 18... | -- | -- | .14 | .00 | .14 | .02 | .13 | .02 | .00 | 87 | 6950 | 25 |
| DEC 18... | -- | -- | .13 | .01 | .14 | .08 | .14 | .03 | .00 | 77 | 3870 | 24 |
| JAN 14... | -- | -- | .13 | .01 | .14 | .09 | .09 | .02 | .00 | 43 | 2010 | 29 |
| FEB 18... | -- | -- | .18 | .01 | .19 | .05 | .15 | .04 | .00 | 51 | 2560 | 47 |
| MAR 16... | -- | -- | .12 | .00 | .12 | .02 | .14 | .01 | .00 | 31 | 784 | 18 |
| APR 20... | -- | -- | .11 | .00 | .11 | .09 | .17 | .03 | .00 | 40 | 1540 | 30 |
| MAY 18... | -- | -- | .09 | .00 | .09 | .04 | .08 | .03 | .00 | 76 | 4510 | 13 |
| JUN 15... | -- | -- | .06 | .01 | .07 | .11 | .14 | .07 | .00 | 76 | 6260 | 31 |
| JUL 15... | -- | 14 | .02 | .01 | .03 | .09 | .12 | .03 | .00 | 59 | 4370 | 27 |
| AUG 18... | 0 | -- | .05 | .00 | .05 | .06 | .20 | .01 | .00 | 28 | 1400 | 20 |
| SEP 22... | 9 | -- | .01 | .00 | .01 | .04 | .10 | .02 | .01 | 26 | 663 | 28 |

| DATE | TIME | TOTAL ARSENIC (AS) (UG/L) | DIS-SOLVED ARSENIC (AS) (UG/L) | TOTAL CAD-MIUM (CD) (UG/L) | DIS-SOLVED CAD-MIUM (CD) (UG/L) | TOTAL CHRO-MIUM (CR) (UG/L) | DIS-SOLVED CHRO-MIUM (CR) (UG/L) | TOTAL COBALT (CO) (UG/L) | DIS-SOLVED COBALT (CO) (UG/L) | TOTAL COPPER (CU) (UG/L) | DIS-SOLVED COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 16... | 1100 | 2 | 0 | 0 | 0 | 60 | 0 | 40 | 0 | 10 | 1 | 300 |
| JAN 14... | 1120 | 0 | 0 | <10 | 0 | 0 | 0 | <50 | 0 | 10 | 1 | 620 |
| APR 20... | 1130 | 1 | 0 | <10 | 0 | 0 | 0 | <50 | 0 | <10 | 3 | 670 |
| JUL 15... | 0800 | 1 | 1 | <10 | 1 | 0 | 0 | <50 | 0 | 10 | 1 | 1000 |

| DATE | DIS-SOLVED IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | DIS-SOLVED LEAD (PB) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | DIS-SOLVED MAN-GANESE (MN) (UG/L) | TOTAL MERCURY (HG) (UG/L) | DIS-SOLVED MERCURY (HG) (UG/L) | TOTAL SELE-NIUM (SE) (UG/L) | DIS-SOLVED SELE-NIUM (SE) (UG/L) | TOTAL ZINC (ZN) (UG/L) | DIS-SOLVED ZINC (ZN) (UG/L) | TOTAL ORGANIC CARBON (C) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 16... | 60 | <100 | 3 | 20 | 10 | .0 | .0 | 0 | 0 | 30 | 10 | 2.5 |
| JAN 14... | 30 | <100 | 2 | 30 | 10 | .0 | .1 | 0 | 0 | 50 | 0 | 1.3 |
| APR 20... | 60 | <100 | 3 | 50 | 20 | .3 | .1 | 0 | 0 | 10 | 0 | 1.7 |
| JUL 15... | 60 | <100 | 4 | 30 | 0 | .0 | .0 | 0 | 0 | 10 | 10 | 1.2 |

### QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

#### PERIPHYTON

| Date | Length of exposure (days) | Biomass (g/m²) Dry weight | Biomass (g/m²) Ash weight | Chlorophyll a (mg/m²) | Chlorophyll b (mg/m²) | Biomass pigment ratio | Sampling method |
|---|---|---|---|---|---|---|---|
| Oct. 16 | 30 | 35 | 33 | 2.7 | 0.0 | 840 | Polyethylene strip |
| Jan. 14 | 27 | 6.3 | 4.5 | 0.2 | 0.1 | 10,000 | |
| June 16 | 29 | 17.0 | 13.4 | 1.07 | 0.000 | 3,400 | |
| July 15 | 21 | 24.8 | 12.5 | 1.68 | 0.000 | 7,400 | |

12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

IDENTIFICATION OF PHYTOPLANKTON

760 CELLS/ML

| OCT. 16, 1975<br>1100 HOURS | | _ORGANISM__NAME | _COMMON__NAME | | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|---|---|
| | | CHLOROPHYTA | GREEN ALGAE | | | | |
| | | .CHLOROPHYCEAE | | | | | |
| | | ..CHLOROCOCCALES | | | | | |
| | | ...OOCYSTACEAE | | | | | |
| | | ....ANKISTRODESMUS | | | 9 | 1 | |
| | | ...SCENEDESMACEAE | | | | | |
| | | ....CRUCIGENIA | | | 36 | 5 | |
| | | | | TOTALS | 45 | 6 | 0.722=DIVERSITY |
| | | CHRYSOPHYTA | | | | | |
| | | .BACILLARIOPHYCEAE | DIATOMS | | | | |
| | | ..PENNALES | PENNATE | | | | |
| | | ...FRAGILARIACEAE | | | | | |
| | | ....H.ARCUS | | | 27 | 4 | |
| | | ...ACHNANTHACEAE | | | | | |
| | D | ....ACHNANTHES | | | 160 | 21 | |
| | | ...CYMBELLACEAE | | | | | |
| | | ....CYMBELLA | | | 18 | 2 | |
| | | ...DIATOMACEAE | | | | | |
| | | ....DIATOMA | | | 9 | 1 | |
| | | ...FRAGILARIACEAE | | | | | |
| | | ....SYNEDRA | | | 63 | 8 | |
| | | ...GOMPHONEMATACEAE | | | | | |
| | | ....GOMPHONEMA | | | 45 | 6 | |
| | | ...NAVICULACEAE | NAVICULOID | | | | |
| | | ....NAVICULA | . | | 90 | 12 | |
| | | ...NITZSCHIACEAE | | | | | |
| | D | ....NITZSCHIA | | | 250 | 33 | |
| | | | | TOTALS | 670 | 87 | 2.414=DIVERSITY |
| | | .CHRYSOPHYCEAE | YELLOW-BROWN ALGAE | | | | |
| | | ..CHRYSOMONADALES | | | | | |
| | | ...OCHROMONADACEAE | | | | | |
| | | ....DINOBRYON | | | 9 | 1 | |
| | | | | TOTALS | 9 | 1 | 0.000=DIVERSITY |
| | | CYANOPHYTA | BLUE-GREEN ALGAE | | | | |
| | | .MYXOPHYCEAE | | | | | |
| | | ..OSCILLATORIALES | FILAMENTOUS | | | | |
| | | ...OSCILLATORIACEAE | | | | | |
| | | ....PHORMIDIUM | | | 36 | 5 | |
| | | | | TOTALS | 36 | 5 | 0.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.597
CLASS 0.689
ORDER 0.689
FAMILY 2.858
GENERA 2.858
SAMPLING METHOD - EDI

11 CELLS/ML

| NOV. 18, 1975<br>1015 HOURS | | _ORGANISM__NAME | _COMMON__NAME | | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|---|---|
| | | CHRYSOPHYTA | | | | | |
| | | .BACILLARIOPHYCEAE | DIATOMS | | | | |
| | | ..CENTRALES | CENTRIC | | | | |
| | | ...COSCINODISCACEAE | | | | | |
| | D | ....CYCLOTELLA | | | 6 | 50 | |
| | | ..PENNALES | PENNATE | | | | |
| | | ...ACHNANTHACEAE | | | | | |
| | D | ....ACHNANTHES | | | 6 | 50 | |
| | | ...FRAGILARIACEAE | | | | | |
| | L | ....ASTERIONELLA | | | | 0 | |
| | | ...NAVICULACEAE | NAVICULOID | | | | |
| | L | ....NAVICULA | | | | 0 | |
| | | | | TOTALS | 11 | 100 | 1.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
ORDER 1.000
FAMILY 1.000
GENERA 1.000
SAMPLING METHOD - EDI

## 12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA--Continued

### QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

### IDENTIFICATION OF PHYTOPLANKTON

4 CELLS/ML

| DEC. 18, 1975<br>1230 HOURS | _ORGANISM__NAME | _COMMON__NAME | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|
| | CHRYSOPHYTA | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | ..PENNALES | PENNATE | | | |
| | ...FRAGILARIACEAE | | | | |
| D | ....F.ARCUS | | 4 | 100 | |
| | ..CENTRALES | CENTRIC | | | |
| | ...COSCINODISCACEAE | | | | |
| L | ....CYCLOTELLA | | | 0 | |
| | ..PENNALES | PENNATE | | | |
| | ...NAVICULACEAE | NAVICULOID | | | |
| L | ....NAVICULA | | | 0 | |
| | ...NITZSCHIACEAE | | | | |
| L | ....NITZSCHIA | | | 0 | |
| | | TOTALS | 4 | 100 | 0.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
SAMPLING METHOD EDI

8 CELLS/ML

| JAN. 14, 1976<br>1120 HOURS | _ORGANISM__NAME | _COMMON__NAME | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|
| | CHRYSOPHYTA | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | ..CENTRALES | CENTRIC | | | |
| | ...COSCINODISCACEAE | | | | |
| L | ....CYCLOTELLA | | | 0 | |
| | ..PENNALES | PENNATE | | | |
| | ...FRAGILARIACEAE | | | | |
| D | ....ASTERIONELLA | | 4 | 50 | |
| D | ....SYNEDRA | | 4 | 50 | |
| | | TOTALS | 8 | 100 | 1.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
GENERA 1.000

SAMPLING METHOD - EDI

84 CELLS/ML

| FEB. 18, 1976<br>1140 HOURS | _ORGANISM__NAME | _COMMON__NAME | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|
| | CHLOROPHYTA | GREEN ALGAE | | | |
| | .CHLOROPHYCEAE | | | | |
| | ..CHLOROCOCCALES | | | | |
| | ...OOCYSTACEAE | | | | |
| | ....ANKISTRODESMUS | | 10 | 12 | |
| | ..TETRASPORALES | | | | |
| | ...COCCOMYXACEAE | | | | |
| D | ....ELAKATOTHRIX | | 15 | 18 | |
| | | TOTALS | 25 | 30 | 0.971=DIVERSITY |
| | CHRYSOPHYTA | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | ..CENTRALES | CENTRIC | | | |
| | ...COSCINODISCACEAE | | | | |
| D | ....CYCLOTELLA | | 20 | 24 | |
| | ....MELOSIRA | | 5 | 6 | |
| | ..PENNALES | PENNATE | | | |
| | ...ACHNANTHACEAE | | | | |
| | ....ACHNANTHES | | 5 | 6 | |
| | ...CYMBELLACEAE | | | | |
| | ....CYMBELLA | | 10 | 12 | |
| | ...GOMPHONEMATACEAE | | | | |
| L | ....GOMPHONEMA | | | 0 | |
| | ...NAVICULACEAE | NAVICULOID | | | |
| | ....NAVICULA | | 10 | 12 | |
| | ...NITZSCHIACEAE | | | | |
| | ....NITZSCHIA | | 10 | 12 | |
| | | TOTALS | 59 | 72 | 2.418=DIVERSITY |
| | CYANOPHYTA | BLUE-GREEN ALGAE | | | |
| | .MYXOPHYCEAE | | | | |
| | ..OSCILLATORIALES | FILAMENTOUS | | | |
| | ...NOSTOCACEAE | | | | |
| L | ....APHANIZOMENON | | | 0 | |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.874
CLASS 0.874
ORDER 1.851
FAMILY 2.654
GENERA 2.867

SAMPLING METHOD - EDI

12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

IDENTIFICATION OF PHYTOPLANKTON

200 CELLS/ML

MAR. 16, 1976
1025 HOURS

| | _ORGANISM__NAME_ | _COMMON__NAME_ | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|
| | CHRYSOPHYTA | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | ..PENNALES | PENNATE | | | |
| | ...FRAGILARIACEAE | | | | |
| | ....H.ARCUS | | 12 | 6 | |
| | ..CENTRALES | CENTRIC | | | |
| | ...COSCINODISCACEAE | | | | |
| D | ....MELOSIRA | | 70 | 35 | |
| | ..PENNALES | PENNATE | | | |
| | ...DIATOMACEAE | | | | |
| | ....DIATOMA | | 12 | 6 | |
| | ...FRAGILARIACEAE | | | | |
| L | ....ASTERIONELLA | | | 0 | |
| L | ....FRAGILARIA | | | 0 | |
| D | ....SYNEDRA | | 100 | 53 | |
| | ...NITZSCHIACEAE | | | | |
| L | ....NITZSCHIA | | | 0 | |
| | | TOTALS | 200 | 100 | 1.497=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
ORDER 1.221
FAMILY 1.497
GENERA 1.497

SAMPLING METHOD - EDI

390 CELLS/ML

APR. 20, 1976
1130 HOURS

| | _ORGANISM__NAME_ | _COMMON__NAME_ | CELLS/ML | PER_CENT | |
|---|---|---|---|---|---|
| | CHRYSOPHYTA | | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | | |
| | ..PENNALES | PENNATE | | | |
| | ...FRAGILARIACEAE | | | | |
| L | ....H.ARCUS | | | 0 | |
| | ..CENTRALES | CENTRIC | | | |
| | ...COSCINODISCACEAE | | | | |
| | ....MELOSIRA | | 17 | 4 | |
| | ..PENNALES | PENNATE | | | |
| | ...ACHNANTHACEAE | | | | |
| | ....ACHNANTHES | | 26 | 7 | |
| | ...CYMBELLACEAE | | | | |
| | ....CYMBELLA | | 43 | 11 | |
| | ...FRAGILARIACEAE | | | | |
| | ....ASTERIONELLA | | 35 | 9 | |
| | ....FRAGILARIA | | 35 | 9 | |
| | ...GOMPHONEMATACEAE | | | | |
| D | ....GOMPHONEMA | | 61 | 16 | |
| | ...MERIDIONACEAE | | | | |
| | ....MERIDION | | 9 | 2 | |
| | ...NAVICULACEAE | NAVICULOID | | | |
| | ....NAVICULA | | 35 | 9 | |
| | ...NITZSCHIACEAE | | | | |
| D | ....NITZSCHIA | | 95 | 24 | |
| | ...SURIRELLACEAE | | | | |
| L | ....SURIRELLA | | | 0 | |
| | | TOTALS | 360 | 91 | 2.917=DIVERSITY |
| | .CHRYSOPHYCEAE | YELLOW-BROWN ALGAE | | | |
| | ..CHRYSOMONADALES | | | | |
| | ...OCHROMONADACEAE | | | | |
| | ....DINOBRYON | | 17 | 4 | |
| | | TOTALS | 17 | 4 | 0.000=DIVERSITY |
| | EUGLENOPHYTA | EUGLENOIDS | | | |
| | .EUGLENOPHYCEAE | | | | |
| | ..EUGLENALES | | | | |
| | ...EUGLENACEAE | | | | |
| | ....TRACHELOMONAS | | 17 | 4 | |
| | | TOTALS | 17 | 4 | 0.000=DIVERSITY |

NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
PHYL/DIV 0.262
CLASS 0.522
ORDER 0.778
FAMILY 3.001
GENERA 3.179

SAMPLING METHOD - EDI

12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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                                   IDENTIFICATION OF PHYTOPLANKTON

                                            85 CELLS/ML

MAY 18, 1976   _ORGANISM__NAME______________   _COMMON__NAME______   CELLS/ML      PER_CENT
 1425 HOURS
               CHLOROPHYTA                     GREEN ALGAE
               .CHLOROPHYCEAE
               ..CHLOROCOCCALES
               ...OOCYSTACEAE
               ....ANKISTRODESMUS                                    _____4         __5
                                                            TOTALS        4           5        0.000=DIVERSITY

               CHRYSOPHYTA
               .BACILLARIOPHYCEAE              DIATOMS
               ..PENNALES                      PENNATE
               ...ACHNANTHACEAE
             D ....ACHNANTHES                                            18          21
               ...CYMBELLACEAE
               ....CYMBELLA                                               9          11
               ...FRAGILARIACEAE
             D ....SYNEDRA                                               31          37
               ...NAVICULACEAE                 NAVICULOID
             D ....NAVICULA                                              18          21
               ...NITZSCHIACEAE
               ....NITZSCHIA                                         _____4         __5
                                                            TOTALS       80          95        2.078=DIVERSITY

               NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
                     ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
                     DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
                                        PHYL/DIV 0.297
                                           CLASS 0.297
                                           ORDER 0.297
                                          FAMILY 2.266
                                          GENERA 2.266

                     SAMPLING METHOD - EDI

                                            270 CELLS/ML

JULY 15, 1976  _ORGANISM__NAME______________   _COMMON__NAME______   CELLS/ML      PER_CENT
 0800 HOURS
               CHLOROPHYTA                     GREEN ALGAE
               .CHLOROPHYCEAE
               ..VOLVOCALES
               ...CHLAMYDOMONADACEAE
               ....CHLAMYDOMONAS                                          4           1
               ..ZYGNEMATALES
               ...DESMIDIACEAE                 PLACODERM DESMIDS
               ....CLOSTERIUM                                        _____4         __1
                                                            TOTALS        8           2        1.000=DIVERSITY

               CHRYSOPHYTA
               .BACILLARIOPHYCEAE              DIATOMS
               ..PENNALES                      PENNATE
               ...FRAGILARIACEAE
               ....H.ARCUS                                                4           1
               ..CENTRALES                     CENTRIC
               ...COSCINODISCACEAE
               ....CYCLOTELLA                                            12           4
               ..PENNALES                      PENNATE
               ...ACHNANTHACEAE
               ....ACHNANTHES                                            16           6
               ...CYMBELLACEAE
               ....CYMBELLA                                               4           1
               ...FRAGILARIACEAE
             D ....SYNEDRA                                               56          21
               ...NITZSCHIACEAE
               ....NITZSCHIA                                             20           7
               ...TABELLARIACEAE
               ....TABELLARIA                                        ____12         __4
                                                            TOTALS      120          44        2.295=DIVERSITY

               .CHRYSOPHYCEAE                  YELLOW-BROWN ALGAE
               ..CHRYSOMONADALES
               ...OCHROMONADACEAE
               ....DINOBRYON                                         ____12         __4
                                                            TOTALS       12           4        0.000=DIVERSITY

               CYANOPHYTA                      BLUE-GREEN ALGAE
               .MYXOPHYCEAE
               ..OSCILLATORIALES               FILAMENTOUS
               ...OSCILLATORIACEAE
             D ....OSCILLATORIA                                      ___130         _47
                                                            TOTALS      130          47        0.000=DIVERSITY

               NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
                     ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER , 200-X MICROSCOPE
                     DIVERSITY INDICES, BASED ON ACTUAL COUNTS:
                                        PHYL/DIV 1.161
                                           CLASS 1.377
                                           ORDER 1.707
                                          FAMILY 2.453
                                          GENERA 2.453

                     SAMPLING METHOD - EDI
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12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

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                                   IDENTIFICATION OF PHYTOPLANKTON

                                             210 CELLS/ML

AUG. 18, 1976  _ORGANISM__NAME_______________  _COMMON__NAME______  CELLS/ML     PER_CENT
  1155 HOURS
               CHRYSOPHYTA
               .BACILLARIOPHYCEAE              DIATOMS
               ..PENNALES                      PENNATE
               ...FRAGILARIACEAE
             L ....H.ARCUS                                                          0
               ...ACHNANTHACEAE
             D ....ACHNANTHES                                          53          25
               ...CYMBELLACEAE
               ....CYMBELLA                                            13           6
               ...DIATOMACEAE
               ....DIATOMA                                              7           3
               ...FRAGILARIACEAE
             D ....ASTERIONELLA                                        33          16
             D ....FRAGILARIA                                          40          19
               ....SYNEDRA                                             20           9
               ...GOMPHONEMATACEAE
               ....GOMPHONEMA                                          13           6
               ...NAVICULACEAE                 NAVICULOID
               ....NAVICULA                                            13           6
               ...NITZSCHIACEAE
               ....NITZSCHIA                                       _____7         __3
                                                          TOTALS      200          93        2.944=DIVERSITY

               .CHRYSOPHYCEAE                  YELLOW-BROWN ALGAE
               ..CHRYSOMONADALES
               ...OCHROMONADACEAE
               ....DINOBRYON                                       ____13         __6
                                                          TOTALS       13           6        0.000=DIVERSITY

               EUGLENOPHYTA                    EUGLENOIDS
               .EUGLENOPHYCEAE
               ..EUGLENALES
               ...EUGLENACEAE
             L ....TRACHELOMONAS                                                    0

             NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
                   L - LESS THEN 1%: MAY NOT HAVE BEEN ACTUALLY COUNTED
                   ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
                   DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
                                   CLASS 0.337
                                   ORDER 0.337
                                  FAMILY 2.334
                                  GENERA 3.004
                   SAMPLING METHOD - EDI

                                             200 CELLS/ML

SEPT. 22, 1976 _ORGANISM__NAME_______________  _COMMON__NAME______  CELLS/ML     PER_CENT
  1020 HOURS
               CHRYSOPHYTA
               .BACILLARIOPHYCEAE              DIATOMS
               ..PENNALES                      PENNATE
               ...FRAGILARIACEAE
               ....H.ARCUS                                              4           2
               ...ACHNANTHACEAE
             D ....ACHNANTHES                                          58          29
               ....COCCONEIS                                            4           2
               ...CYMBELLACEAE
               ....CYMBELLA                                            12           6
               ...FRAGILARIACEAE
             D ....ASTERIONELLA                                        35          18
               ....FRAGILARIA                                           4           2
               ....SYNEDRA                                              4           2
               ...GOMPHONEMATACEAE
               ....GOMPHONEMA                                           4           2
               ...NAVICULACEAE                 NAVICULOID
               ....NAVICULA                                            12           6
               ....PINNULARIA                                           4           2
               ...NITZSCHIACEAE
             D ....NITZSCHIA                                       ____58         _29
                                                          TOTALS      200         100        2.628=DIVERSITY

             NOTE: D - DOMINANT ORGANISM: GREATER OR EQUAL TO 15%
                   ANALYSIS METHOD: SEDGWICK-RAFTER CHAMBER . 200-X MICROSCOPE
                   DIVERSITY INDICES. BASED ON ACTUAL COUNTS:
                                  FAMILY 2.272
                                  GENERA 2.628
                   SAMPLING METHOD - EDI
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12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 55 | 46 | 51 | 52 | 48 | 49 | 56 | 42 | 54 | 56 | 51 | 53 |
| 2 | 53 | 46 | 50 | 48 | 46 | 47 | 42 | 36 | 40 | 58 | 50 | 53 |
| 3 | 53 | 50 | 52 | 50 | 42 | 44 | 42 | 37 | 39 | 58 | 54 | 56 |
| 4 | 50 | 43 | 45 | 51 | 46 | 49 | 47 | 39 | 43 | 55 | 52 | 54 |
| 5 | 44 | 40 | 42 | 49 | 46 | 48 | --- | --- | --- | 51 | 48 | 50 |
| 6 | 42 | 39 | 40 | 48 | 43 | 46 | --- | --- | --- | 54 | 49 | 52 |
| 7 | 44 | 40 | 42 | 50 | 45 | 48 | --- | --- | --- | 57 | 52 | 55 |
| 8 | 46 | 43 | 45 | 51 | 46 | 48 | --- | --- | --- | 56 | 54 | 55 |
| 9 | 46 | 43 | 45 | 53 | 47 | 51 | --- | --- | --- | 57 | 54 | 55 |
| 10 | 47 | 44 | 46 | 55 | 49 | 53 | --- | --- | --- | 57 | 55 | 56 |
| 11 | 47 | 42 | 45 | 56 | 51 | 54 | --- | --- | --- | 55 | 53 | 54 |
| 12 | 47 | 44 | 46 | 57 | 55 | 56 | --- | --- | --- | 56 | 52 | 53 |
| 13 | 51 | 45 | 48 | 57 | 55 | 56 | --- | --- | --- | 58 | 53 | 55 |
| 14 | 51 | 48 | 50 | 55 | 42 | 48 | --- | --- | --- | 58 | 53 | 57 |
| 15 | 51 | 45 | 49 | 46 | 37 | 43 | --- | --- | --- | 53 | 40 | 45 |
| 16 | 45 | 39 | 42 | 49 | 42 | 46 | --- | --- | --- | 45 | 39 | 41 |
| 17 | 48 | 29 | 39 | 52 | 47 | 49 | --- | --- | --- | 46 | 43 | 45 |
| 18 | 42 | 36 | 39 | 51 | 47 | 50 | 58 | 55 | 56 | 52 | 46 | 48 |
| 19 | 45 | 38 | 42 | 54 | 49 | 51 | 57 | 53 | 55 | 52 | 47 | 49 |
| 20 | 45 | 37 | 41 | 55 | 51 | 53 | 58 | 53 | 55 | 56 | 48 | 51 |
| 21 | 46 | 42 | 43 | 56 | 51 | 54 | 63 | 54 | 58 | 57 | 50 | 53 |
| 22 | 49 | 43 | 46 | 56 | 53 | 55 | 64 | 57 | 59 | 56 | 52 | 54 |
| 23 | 51 | 46 | 49 | 57 | 43 | 48 | 64 | 57 | 59 | 57 | 51 | 54 |
| 24 | 53 | 48 | 50 | 43 | 39 | 42 | 63 | 57 | 59 | 57 | 50 | 53 |
| 25 | 53 | 50 | 51 | 45 | 37 | 42 | 52 | 50 | 51 | 58 | 53 | 56 |
| 26 | 51 | 48 | 49 | 48 | 45 | 46 | 52 | 42 | 49 | --- | --- | --- |
| 27 | 52 | 48 | 50 | 54 | 47 | 51 | 45 | 40 | 42 | --- | --- | --- |
| 28 | 53 | 49 | 51 | 56 | 53 | 54 | 52 | 45 | 48 | --- | --- | --- |
| 29 | 52 | 49 | 50 | --- | --- | --- | 54 | 48 | 52 | --- | --- | --- |
| 30 | 50 | 42 | 44 | --- | --- | --- | 48 | 45 | 47 | --- | --- | --- |
| 31 | 52 | 43 | 47 | --- | --- | --- | 54 | 45 | 49 | --- | --- | --- |
| MONTH | 55 | 29 | 46 | 57 | 37 | 49 | --- | --- | --- | 58 | 39 | 52 |

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | | | | --- | --- | --- | 69 | 64 | 66 | 55 | 51 | 54 |
| 2 | | | | --- | --- | --- | 70 | 65 | 67 | 51 | 45 | 48 |
| 3 | | | | --- | --- | --- | 71 | 66 | 69 | 50 | 45 | 48 |
| 4 | | | | --- | --- | --- | 72 | 68 | 70 | 52 | 48 | 51 |
| 5 | | | | --- | --- | --- | 71 | 66 | 68 | 55 | 51 | 53 |
| 6 | | | | --- | --- | --- | 66 | 63 | 65 | 58 | 55 | 57 |
| 7 | | | | --- | --- | --- | 63 | 61 | 62 | 58 | 54 | 56 |
| 8 | | | | --- | --- | --- | 63 | 60 | 62 | 55 | 48 | 52 |
| 9 | | | | 68 | 64 | 67 | 62 | 59 | 60 | 49 | 46 | 48 |
| 10 | | | | 66 | 60 | 64 | 61 | 58 | 60 | 47 | 44 | 46 |
| 11 | | | | 66 | 63 | 65 | 60 | 58 | 59 | 47 | 44 | 45 |
| 12 | | | | 68 | 65 | 67 | 60 | 55 | 58 | 53 | 47 | 50 |
| 13 | | | | 68 | 66 | 67 | 62 | 57 | 60 | 52 | 50 | 51 |
| 14 | | | | 69 | 67 | 68 | 61 | 59 | 61 | 53 | 49 | 51 |
| 15 | | | | 70 | 67 | 69 | 63 | 59 | 61 | 53 | 48 | 51 |
| 16 | | | | 74 | 66 | 71 | 65 | 61 | 63 | 50 | 47 | 48 |
| 17 | | | | 73 | 69 | 71 | 64 | 64 | 64 | 47 | 44 | 45 |
| 18 | | | | 68 | 64 | 66 | 66 | 62 | 64 | 51 | 44 | 46 |
| 19 | | | | 64 | 61 | 63 | 65 | 62 | 63 | 52 | 48 | 50 |
| 20 | | | | 66 | 62 | 64 | 62 | 57 | 60 | 53 | 50 | 52 |
| 21 | | | | 69 | 64 | 66 | 64 | 60 | 62 | 56 | 51 | 54 |
| 22 | | | | 69 | 62 | 66 | 67 | 63 | 65 | 53 | 51 | 52 |
| 23 | | | | 65 | 63 | 64 | 68 | 64 | 66 | 52 | 50 | 51 |
| 24 | | | | 66 | 63 | 64 | 67 | 65 | 66 | 52 | 48 | 50 |
| 25 | | | | 64 | 62 | 63 | 66 | 63 | 65 | 51 | 49 | 50 |
| 26 | | | | 65 | 63 | 64 | 67 | 64 | 65 | 53 | 49 | 51 |
| 27 | | | | 67 | 64 | 65 | 69 | 64 | 66 | 52 | 46 | 49 |
| 28 | | | | 69 | 66 | 67 | 66 | 63 | 65 | 45 | 41 | 44 |
| 29 | | | | 69 | 66 | 67 | 64 | 61 | 62 | 49 | 46 | 48 |
| 30 | | | | 70 | 66 | 68 | 61 | 55 | 59 | 51 | 47 | 49 |
| 31 | | | | 68 | 65 | 66 | --- | --- | --- | 51 | 48 | 50 |
| MONTH | | | | --- | --- | --- | 72 | 55 | 63 | 58 | 41 | 50 |

### 12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA--Continued

### SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 51 | 48 | 50 | 39 | 36 | 37 | 37 | 35 | 35 | 44 | 40 | 42 |
| 2 | 54 | 51 | 52 | 41 | 36 | 38 | 38 | 34 | 37 | 43 | 39 | 41 |
| 3 | 54 | 50 | 53 | 40 | 36 | 38 | 38 | 36 | 37 | 45 | 40 | 43 |
| 4 | 55 | 51 | 53 | 37 | 33 | 36 | 38 | 36 | 37 | 48 | 43 | 46 |
| 5 | 54 | 52 | 53 | 36 | 32 | 33 | 38 | 36 | 37 | 46 | 40 | 42 |
| 6 | 54 | 52 | 52 | 33 | 30 | 32 | 39 | 36 | 37 | 42 | 38 | 41 |
| 7 | 52 | 48 | 50 | 33 | 29 | 31 | 39 | 36 | 37 | 44 | 40 | 42 |
| 8 | 48 | 45 | 47 | 33 | 30 | 32 | 39 | 33 | 36 | 45 | 40 | 43 |
| 9 | 45 | 43 | 44 | 33 | 30 | 31 | 40 | 36 | 38 | 48 | 42 | 45 |
| 10 | 45 | 42 | 43 | 37 | 31 | 34 | 43 | 38 | 40 | 51 | 44 | 47 |
| 11 | 43 | 40 | 41 | 38 | 35 | 36 | 42 | 39 | 40 | 49 | 46 | 47 |
| 12 | 46 | 40 | 44 | 37 | 34 | 36 | 40 | 36 | 38 | 50 | 44 | 47 |
| 13 | 44 | 43 | 44 | 37 | 33 | 35 | 39 | 38 | 38 | 51 | 47 | 50 |
| 14 | 46 | 43 | 45 | 35 | 33 | 35 | 42 | 38 | 40 | 48 | 44 | 46 |
| 15 | 47 | 40 | 44 | 38 | 35 | 36 | 44 | 40 | 42 | 50 | 45 | 47 |
| 16 | 47 | 35 | 36 | 35 | 33 | 34 | 43 | 37 | 40 | 51 | 45 | 47 |
| 17 | 39 | 31 | 36 | 33 | 32 | 33 | 41 | 37 | 40 | 49 | 44 | 47 |
| 18 | 38 | 36 | 37 | 35 | 32 | 33 | 44 | 40 | 42 | 50 | 43 | 47 |
| 19 | 36 | 34 | 35 | 36 | 33 | 35 | 45 | 42 | 43 | 48 | 43 | 46 |
| 20 | 37 | 33 | 35 | 36 | 34 | 35 | 45 | 41 | 42 | 47 | 43 | 44 |
| 21 | 38 | 35 | 36 | 36 | 34 | 35 | 44 | 38 | 41 | 49 | 43 | 45 |
| 22 | 38 | 34 | 36 | 37 | 35 | 36 | 43 | 40 | 41 | 48 | 43 | 46 |
| 23 | 38 | 36 | 37 | 38 | 35 | 37 | 44 | 42 | 43 | 51 | 44 | 47 |
| 24 | 38 | 36 | 37 | 37 | 34 | 35 | 45 | 39 | 43 | 49 | 43 | 46 |
| 25 | 40 | 37 | 38 | 37 | 34 | 35 | 45 | 40 | 43 | 50 | 45 | 48 |
| 26 | 41 | 38 | 40 | 36 | 34 | 35 | 43 | 40 | 42 | 49 | 43 | 46 |
| 27 | 42 | 40 | 41 | 37 | 34 | 36 | 44 | 41 | 42 | 48 | 42 | 46 |
| 28 | 42 | 39 | 40 | 37 | 34 | 36 | 45 | 41 | 43 | 48 | 43 | 45 |
| 29 | 38 | 35 | 37 | 37 | 34 | 36 | 44 | 40 | 42 | 47 | 42 | 44 |
| 30 | 37 | 34 | 36 | 36 | 30 | 34 | 48 | 41 | 44 | 45 | 42 | 43 |
| 31 | --- | --- | --- | 37 | 34 | 35 | 44 | 40 | 42 | --- | --- | --- |
| MONTH | 55 | 31 | 42 | 41 | 29 | 35 | 48 | 33 | 40 | 51 | 38 | 45 |
| YEAR | 74 | 29 | 49 | | | | | | | | | |

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 13.5 | 12.0 | 13.0 | 8.5 | 8.0 | 8.0 | 4.5 | 3.5 | 4.0 | 4.0 | 3.5 | 3.5 |
| 2 | 13.5 | 12.5 | 13.0 | 8.0 | 8.0 | 8.0 | 5.0 | 4.0 | 4.5 | 4.0 | 3.0 | 3.5 |
| 3 | 13.5 | 12.5 | 13.0 | 9.5 | 7.5 | 8.5 | 5.5 | 5.0 | 5.5 | 4.5 | 4.0 | 4.5 |
| 4 | 12.5 | 12.0 | 12.5 | 9.5 | 9.0 | 9.0 | 6.0 | 5.0 | 5.5 | 5.0 | 4.5 | 4.5 |
| 5 | 12.0 | 10.5 | 11.5 | 9.0 | 8.0 | 8.5 | --- | --- | --- | 5.0 | 4.5 | 4.5 |
| 6 | 11.0 | 9.5 | 10.5 | 8.0 | 7.5 | 7.5 | --- | --- | --- | 5.0 | 4.5 | 4.5 |
| 7 | 11.0 | 10.0 | 10.5 | 7.5 | 7.0 | 7.5 | --- | --- | --- | 5.0 | 4.5 | 4.5 |
| 8 | 11.5 | 10.0 | 11.0 | 7.0 | 6.5 | 7.0 | --- | --- | --- | 5.0 | 4.5 | 5.0 |
| 9 | 11.5 | 11.0 | 11.5 | 6.5 | 6.0 | 6.5 | --- | --- | --- | 5.5 | 5.0 | 5.0 |
| 10 | 12.0 | 11.0 | 11.5 | 7.0 | 6.0 | 6.5 | --- | --- | --- | 5.0 | 4.5 | 5.0 |
| 11 | 11.0 | 10.5 | 10.5 | 7.0 | 6.5 | 7.0 | --- | --- | --- | 5.0 | 4.0 | 4.5 |
| 12 | 11.0 | 10.5 | 11.0 | 7.5 | 7.0 | 7.0 | --- | --- | --- | 4.0 | 4.0 | 4.0 |
| 13 | 11.0 | 10.5 | 11.0 | 7.5 | 7.0 | 7.5 | --- | --- | --- | 4.0 | 3.5 | 4.0 |
| 14 | 11.0 | 10.0 | 10.5 | 8.0 | 7.0 | 7.5 | --- | --- | --- | 4.0 | 3.5 | 4.0 |
| 15 | 11.0 | 9.0 | 10.0 | 7.5 | 6.0 | 7.0 | --- | --- | --- | 4.0 | 3.5 | 3.5 |
| 16 | 10.0 | 9.5 | 10.0 | 6.5 | 5.5 | 6.0 | --- | --- | --- | 4.5 | 3.5 | 4.0 |
| 17 | 10.5 | 9.5 | 10.0 | 6.0 | 5.0 | 5.5 | --- | --- | --- | 4.0 | 4.0 | 4.0 |
| 18 | 10.5 | 9.5 | 10.0 | 5.5 | 5.5 | 5.5 | --- | --- | --- | 5.0 | 4.0 | 4.5 |
| 19 | 9.5 | 9.0 | 9.5 | 5.5 | 5.0 | 5.0 | 4.0 | 3.5 | 3.5 | 4.0 | 3.5 | 4.0 |
| 20 | 9.0 | 8.0 | 8.5 | 6.5 | 5.5 | 5.5 | 4.0 | 3.5 | 3.5 | 4.0 | 3.0 | 3.5 |
| 21 | 9.0 | 8.0 | 8.5 | 6.5 | 5.5 | 6.0 | 4.5 | 3.0 | 4.0 | 4.0 | 3.5 | 3.5 |
| 22 | 9.0 | 8.0 | 8.5 | 6.5 | 6.5 | 6.5 | 5.5 | 4.5 | 5.0 | 4.5 | 4.0 | 4.0 |
| 23 | 9.0 | 7.5 | 8.5 | 6.5 | 6.0 | 6.0 | 6.0 | 5.0 | 5.5 | 4.5 | 4.0 | 4.0 |
| 24 | 8.5 | 8.0 | 8.0 | 6.5 | 5.5 | 6.0 | 6.0 | 5.5 | 6.0 | 4.0 | 3.5 | 4.0 |
| 25 | 8.0 | 8.0 | 8.0 | 6.5 | 5.5 | 6.0 | --- | --- | --- | --- | --- | --- |
| 26 | 8.0 | 7.5 | 7.5 | 7.0 | 6.0 | 6.5 | 6.5 | 5.5 | 6.0 | --- | --- | --- |
| 27 | 8.5 | 7.5 | 8.0 | 6.0 | 5.0 | 6.0 | 6.0 | 5.0 | 5.5 | --- | --- | --- |
| 28 | 8.5 | 8.0 | 8.0 | 5.0 | 4.0 | 5.0 | 5.5 | 5.0 | 5.0 | --- | --- | --- |
| 29 | 8.5 | 7.5 | 8.0 | 4.0 | 3.5 | 4.0 | 6.0 | 5.5 | 6.0 | --- | --- | --- |
| 30 | 7.5 | 7.0 | 7.5 | --- | --- | --- | 6.0 | 5.0 | 5.5 | --- | --- | --- |
| 31 | 8.0 | 7.5 | 7.5 | --- | --- | --- | 5.0 | 4.0 | 4.5 | --- | --- | --- |
| MONTH | 13.5 | 7.0 | 10.0 | 9.5 | 3.5 | 6.5 | --- | --- | --- | --- | --- | --- |

## 12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | | | | --- | --- | --- | 6.5 | 4.5 | 5.5 | 11.0 | 8.5 | 10.0 |
| 2 | | | | --- | --- | --- | 7.0 | 4.5 | 5.5 | 10.0 | 7.5 | 8.5 |
| 3 | | | | --- | --- | --- | 8.0 | 5.5 | 6.5 | 8.0 | 6.5 | 7.5 |
| 4 | | | | --- | --- | --- | 8.5 | 6.0 | 7.0 | 8.5 | 7.5 | 8.0 |
| 5 | | | | --- | --- | --- | 9.0 | 6.5 | 7.5 | 8.5 | 7.5 | 8.0 |
| 6 | | | | --- | --- | --- | 8.5 | 7.0 | 7.5 | 9.5 | 7.0 | 8.0 |
| 7 | | | | --- | --- | --- | 7.0 | 6.0 | 6.5 | 11.0 | 8.5 | 9.5 |
| 8 | | | | --- | --- | --- | 6.5 | 6.0 | 6.5 | 10.5 | 9.0 | 9.5 |
| 9 | | | | --- | --- | --- | 8.0 | 5.5 | 6.5 | 10.0 | 8.5 | 9.0 |
| 10 | | | | 4.5 | 4.0 | 4.5 | 8.5 | 7.5 | 8.0 | 9.0 | 7.0 | 8.5 |
| 11 | | | | 5.5 | 3.5 | 4.0 | 7.5 | 6.0 | 7.0 | 8.5 | 6.5 | 7.5 |
| 12 | | | | 4.5 | 3.5 | 4.0 | 7.5 | 5.5 | 6.5 | 8.0 | 7.5 | 7.5 |
| 13 | | | | 4.5 | 3.0 | 4.0 | 8.0 | 6.0 | 7.0 | 8.0 | 7.5 | 8.0 |
| 14 | | | | 6.0 | 4.0 | 5.0 | 7.0 | 5.0 | 6.0 | 9.0 | 7.0 | 8.0 |
| 15 | | | | 6.0 | 4.5 | 5.0 | 5.5 | 4.5 | 5.0 | 10.5 | 8.0 | 9.0 |
| 16 | | | | 6.5 | 4.5 | 5.0 | 6.5 | 4.5 | 5.5 | 10.5 | 9.0 | 10.0 |
| 17 | | | | 6.5 | 5.5 | 6.0 | 7.0 | 6.0 | 6.5 | 10.0 | 8.0 | 9.0 |
| 18 | | | | 6.0 | 5.0 | 5.5 | 7.0 | 6.0 | 6.5 | --- | --- | --- |
| 19 | | | | 6.0 | 4.5 | 5.0 | 8.0 | 6.5 | 7.0 | --- | --- | --- |
| 20 | | | | 4.5 | 4.0 | 4.5 | 8.0 | 6.5 | 7.0 | 9.5 | 8.0 | 9.0 |
| 21 | | | | 5.0 | 3.5 | 4.5 | 7.5 | 6.0 | 6.5 | 11.0 | 9.0 | 9.5 |
| 22 | | | | 5.0 | 4.5 | 5.0 | 8.0 | 6.5 | 7.5 | 10.5 | 9.5 | 10.0 |
| 23 | | | | 4.5 | 4.0 | 4.5 | 7.5 | 6.5 | 7.0 | 10.0 | 9.0 | 9.5 |
| 24 | | | | 5.0 | 4.0 | 4.5 | 7.5 | 6.5 | 7.0 | 9.0 | 8.0 | 8.5 |
| 25 | | | | 5.0 | 4.0 | 4.5 | 8.0 | 6.5 | 7.0 | 9.0 | 7.5 | 8.5 |
| 26 | | | | 5.5 | 4.5 | 5.0 | 9.0 | 6.5 | 7.5 | 9.5 | 8.5 | 9.0 |
| 27 | | | | 5.0 | 4.5 | 4.5 | 10.0 | 7.5 | 8.5 | 9.5 | 8.0 | 8.5 |
| 28 | | | | 5.5 | 4.5 | 5.0 | 10.0 | 8.0 | 9.0 | 8.0 | 7.0 | 7.5 |
| 29 | | | | 5.5 | 4.5 | 5.0 | 11.5 | 8.5 | 10.0 | 8.5 | 7.5 | 8.0 |
| 30 | | | | 6.0 | 5.0 | 5.5 | 11.5 | 9.0 | 10.5 | 8.5 | 7.5 | 8.0 |
| 31 | | | | 6.5 | 5.0 | 5.5 | --- | --- | --- | 9.0 | 7.5 | 8.0 |
| MONTH | | | | --- | --- | --- | 11.5 | 4.5 | 7.0 | 11.0 | 6.5 | 8.5 |

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 8.5 | 7.5 | 8.0 | 11.5 | 10.0 | 10.5 | 13.5 | 12.5 | 13.0 | 13.0 | 12.0 | 12.5 |
| 2 | 10.0 | 8.0 | 9.0 | 12.5 | 10.0 | 11.0 | 13.5 | 11.5 | 12.5 | 13.5 | 12.0 | 12.5 |
| 3 | 11.0 | 8.0 | 9.0 | 12.0 | 11.0 | 11.5 | 13.0 | 12.0 | 13.0 | 13.0 | 12.0 | 12.5 |
| 4 | 11.0 | 9.0 | 10.0 | 12.0 | 10.0 | 11.0 | 12.5 | 11.5 | 12.0 | 13.0 | 12.0 | 12.5 |
| 5 | 11.5 | 9.5 | 10.5 | 13.0 | 11.0 | 12.0 | 12.5 | 11.5 | 12.0 | 12.5 | 12.0 | 12.0 |
| 6 | 12.0 | 10.0 | 11.0 | 13.0 | 12.5 | 12.5 | 12.5 | 11.5 | 12.0 | 12.0 | 11.0 | 11.5 |
| 7 | 12.0 | 10.0 | 11.0 | 12.5 | 11.0 | 12.0 | 13.0 | 12.0 | 12.5 | 12.0 | 10.0 | 11.0 |
| 8 | 11.0 | 10.5 | 11.0 | 12.0 | 11.0 | 11.5 | 12.0 | 11.0 | 11.5 | 12.5 | 10.5 | 11.5 |
| 9 | 11.0 | 9.5 | 10.5 | 11.0 | 10.5 | 11.0 | 12.5 | 11.5 | 12.0 | 13.0 | 10.5 | 12.0 |
| 10 | 10.5 | 10.0 | 10.5 | 13.0 | 10.0 | 11.5 | 14.0 | 11.5 | 12.5 | 13.0 | 11.0 | 12.0 |
| 11 | 9.5 | 8.5 | 9.0 | 12.5 | 11.5 | 12.0 | 14.0 | 13.0 | 13.5 | 12.0 | 11.5 | 11.5 |
| 12 | 9.0 | 8.0 | 8.5 | 12.0 | 11.0 | 11.5 | 14.0 | 13.0 | 13.5 | 12.5 | 11.0 | 11.5 |
| 13 | 9.0 | 8.0 | 8.5 | 13.5 | 11.0 | 12.0 | 13.5 | 12.5 | 13.0 | 13.0 | 11.0 | 12.0 |
| 14 | 11.0 | 8.0 | 9.5 | 14.0 | 12.0 | 12.5 | 13.0 | 11.5 | 12.5 | 12.5 | 11.5 | 12.0 |
| 15 | 11.0 | 9.5 | 10.5 | 14.5 | 13.0 | 13.5 | 13.5 | 12.5 | 12.5 | 13.0 | 11.5 | 12.0 |
| 16 | 9.5 | 8.5 | 9.0 | 14.0 | 13.0 | 13.5 | 12.5 | 11.5 | 12.0 | 13.5 | 12.0 | 12.5 |
| 17 | 11.0 | 8.5 | 9.5 | 14.0 | 13.0 | 13.5 | 11.5 | 10.5 | 11.0 | 13.0 | 12.0 | 12.5 |
| 18 | 11.5 | 10.5 | 11.0 | 13.5 | 12.5 | 13.0 | 13.0 | 11.0 | 12.0 | 13.0 | 11.5 | 12.0 |
| 19 | 11.0 | 8.5 | 10.0 | 14.0 | 12.0 | 13.0 | 12.5 | 11.0 | 11.5 | 14.0 | 12.0 | 13.0 |
| 20 | 11.0 | 8.0 | 9.5 | 13.5 | 12.5 | 13.0 | 12.5 | 10.5 | 11.5 | 14.5 | 12.0 | 13.0 |
| 21 | 11.5 | 10.0 | 10.5 | 13.0 | 12.0 | 12.5 | 13.0 | 11.0 | 12.0 | 13.5 | 12.0 | 12.5 |
| 22 | 10.0 | 9.5 | 9.5 | 12.0 | 11.5 | 12.0 | 12.5 | 11.5 | 12.0 | 12.5 | 12.0 | 12.5 |
| 23 | 9.5 | 8.5 | 9.0 | 13.5 | 11.0 | 12.5 | 12.5 | 11.5 | 12.0 | 12.0 | 11.5 | 12.0 |
| 24 | 10.0 | 8.5 | 9.0 | 14.5 | 13.5 | 13.5 | 12.5 | 11.5 | 12.0 | 13.0 | 11.5 | 12.0 |
| 25 | 10.5 | 8.5 | 9.0 | 14.0 | 13.0 | 13.5 | 12.5 | 11.5 | 12.0 | 14.0 | 12.0 | 13.0 |
| 26 | 11.5 | 9.0 | 10.0 | 13.5 | 13.0 | 13.5 | 11.5 | 11.0 | 11.0 | 14.0 | 12.0 | 13.0 |
| 27 | 13.0 | 10.0 | 11.5 | 14.0 | 12.5 | 13.0 | 11.0 | 11.0 | 11.0 | 13.5 | 12.0 | 13.0 |
| 28 | 13.0 | 11.5 | 12.5 | 14.0 | 12.5 | 13.5 | 13.0 | 11.0 | 11.5 | 13.5 | 12.0 | 13.0 |
| 29 | 12.5 | 11.5 | 12.0 | 14.0 | 13.0 | 13.5 | 13.0 | 12.5 | 12.5 | 13.5 | 12.0 | 13.0 |
| 30 | 11.5 | 10.5 | 11.0 | 14.0 | 12.5 | 13.0 | 14.0 | 12.0 | 13.0 | 13.0 | 12.0 | 12.5 |
| 31 | --- | --- | --- | 14.0 | 13.0 | 13.5 | 14.0 | 12.5 | 13.0 | --- | --- | --- |
| MONTH | 13.0 | 7.5 | 10.0 | 14.5 | 10.0 | 12.5 | 14.0 | 10.5 | 12.0 | 14.5 | 10.0 | 12.5 |
| YEAR | 14.5 | 3.0 | 9.0 | | | | | | | | | |

## 12200782 UNNAMED TRIBUTARY NO. 2 TO SKAGIT BAY NEAR LA CONNER, WA

LOCATION.--Lat 48°23'47", long 122°32'08", in NW¼NW¼ sec.34, T.34 N., R.2 E., Skagit County, Hydrologic Unit 17110019, at county road crossing 0.6 mi (1.0 km) southeast of Snee-oosh Beach and 1.8 mi (2.9 km) west of La Conner.

PERIOD OF RECORD.--October 1975 to December 1976 (discontinued).

### WATER QUALITY DATA OCTOBER 1975 TO DECEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| OCT , 1975 | | | | | | | | |
| 23... | 0912 | -- | -- | -- | 8.1 | -- | -- | 360 |
| NOV | | | | | | | | |
| 20... | 0930 | .11 | 335 | 7.6 | 5.0 | 0 | 12.0 | -- |
| MAR , 1976 | | | | | | | | |
| 02... | 1228 | .51 | 177 | 6.2 | 3.4 | 2 | 12.2 | 88 |
| MAY | | | | | | | | |
| 21... | 0808 | .17 | 228 | 7.6 | 8.6 | 2 | 11.9 | 4400 |
| AUG | | | | | | | | |
| 26... | 1449 | .09 | 328 | -- | 11.4 | 0 | 10.4 | -- |
| SEP | | | | | | | | |
| 24... | 1507 | .07 | 324 | -- | 11.5 | 15 | 10.2 | -- |
| DEC | | | | | | | | |
| 16... | 1506 | .15 | 309 | -- | 8.8 | 1 | 10.8 | -- |

| DATE | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | ALKALINITY AS CACO3 (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT , 1975 | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | 146 | 120 | -- |
| MAR , 1976 | | | | | | | | | |
| 02... | 57 | 19 | 9.8 | 7.9 | 10 | 2.1 | 46 | 38 | 18 |
| MAY | | | | | | | | | |
| 21... | 100 | 16 | 17 | 14 | 13 | 2.6 | 103 | 84 | 11 |
| AUG | | | | | | | | | |
| 26... | 130 | 6 | 23 | 18 | 15 | 2.4 | 153 | 126 | 15 |
| SEP | | | | | | | | | |
| 24... | 130 | 8 | 21 | 19 | 16 | 2.5 | 150 | 123 | 15 |
| DEC | | | | | | | | | |
| 16... | 140 | 18 | 22 | 20 | 15 | 2.3 | 145 | 119 | 16 |

| DATE | DISSOLVED CHLORIDE (CL) (MG/L) | DISSOLVED FLUORIDE (F) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT , 1975 | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | |
| 20... | -- | -- | .69 | .00 | .06 | .46 | .12 | -- |
| MAR , 1976 | | | | | | | | |
| 02... | 14 | .1 | .91 | .01 | .40 | .91 | .09 | .06 |
| MAY | | | | | | | | |
| 21... | 18 | .2 | .62 | .02 | .15 | .60 | .15 | -- |
| AUG | | | | | | | | |
| 26... | 19 | .1 | .49 | .01 | .06 | .32 | .18 | .15 |
| SEP | | | | | | | | |
| 24... | 19 | .1 | .41 | .01 | .06 | .26 | .17 | .15 |
| DEC | | | | | | | | |
| 16... | 21 | -- | .78 | .01 | .06 | .29 | .14 | .11 |

## 12200791 UNNAMED TRIBUTARY TO SWINOMISH CHANNEL NEAR LACONNER, WA

LOCATION.--Lat 48°25'12", long 122°30'03", in NW¼SW¼ sec.24, T.34 N., R.2 E., Skagit County, Hydrologic Unit 17110019, 2.0 mi (3.2 km) north of La Conner.

PERIOD OF RECORD.--October 1975 to December 1976 (discontinued).

### WATER QUALITY DATA OCTOBER 1975 TO DECEMBER 1976

| DATE | TIME | INSTAN-TANEOUS DIS-CHARGE (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | DIS-SOLVED OXYGEN (MG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| OCT , 1975 | | | | | | | | |
| 23... | 1048 | .13 | -- | -- | 8.0 | -- | -- | 420 |
| NOV | | | | | | | | |
| 20... | 1150 | .16 | 325 | 7.8 | 6.1 | 0 | 12.5 | -- |
| MAR , 1976 | | | | | | | | |
| 02... | 1033 | .59 | 189 | 7.5 | 3.5 | 3 | 12.6 | 64 |
| MAY | | | | | | | | |
| 21... | 1019 | .16 | 275 | 8.0 | 9.0 | 1 | 11.8 | 2600 |
| AUG | | | | | | | | |
| 26... | 1247 | .12 | 292 | -- | 10.6 | 0 | 11.1 | -- |
| SEP | | | | | | | | |
| 24... | 1610 | .13 | 282 | -- | 10.8 | 1 | 10.5 | -- |
| DEC | | | | | | | | |
| 16... | 1237 | .13 | 304 | -- | 9.0 | 1 | 11.1 | -- |

| DATE | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | ALKA-LINITY AS CACO3 (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT , 1975 | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | 144 | 118 | -- |
| MAR , 1976 | | | | | | | | | |
| 02... | 58 | 18 | 11 | 7.4 | 9.0 | 1.2 | 49 | 40 | 19 |
| MAY | | | | | | | | | |
| 21... | 120 | 0 | 22 | 15 | 13 | 1.9 | 148 | 121 | 12 |
| AUG | | | | | | | | | |
| 26... | 120 | 0 | 24 | 15 | 13 | 2.0 | 148 | 121 | 13 |
| SEP | | | | | | | | | |
| 24... | 120 | 0 | 23 | 15 | 13 | 2.1 | 148 | 121 | 12 |
| DEC | | | | | | | | | |
| 16... | 130 | 9 | 23 | 17 | 13 | 2.0 | 144 | 118 | 14 |

| DATE | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED FLUO-RIDE (F) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT , 1975 | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | |
| 20... | -- | -- | .15 | .00 | .04 | .25 | .06 | -- |
| MAR , 1976 | | | | | | | | |
| 02... | 11 | .1 | .59 | .01 | .06 | .47 | .04 | .02 |
| MAY | | | | | | | | |
| 21... | 13 | .1 | .01 | .01 | .02 | .19 | .07 | -- |
| AUG | | | | | | | | |
| 26... | 14 | .1 | .11 | .00 | .03 | .29 | .08 | .07 |
| SEP | | | | | | | | |
| 24... | 15 | .1 | .06 | .00 | .12 | .38 | .07 | .06 |
| DEC | | | | | | | | |
| 16... | 15 | -- | .31 | .00 | .02 | .19 | .07 | .06 |

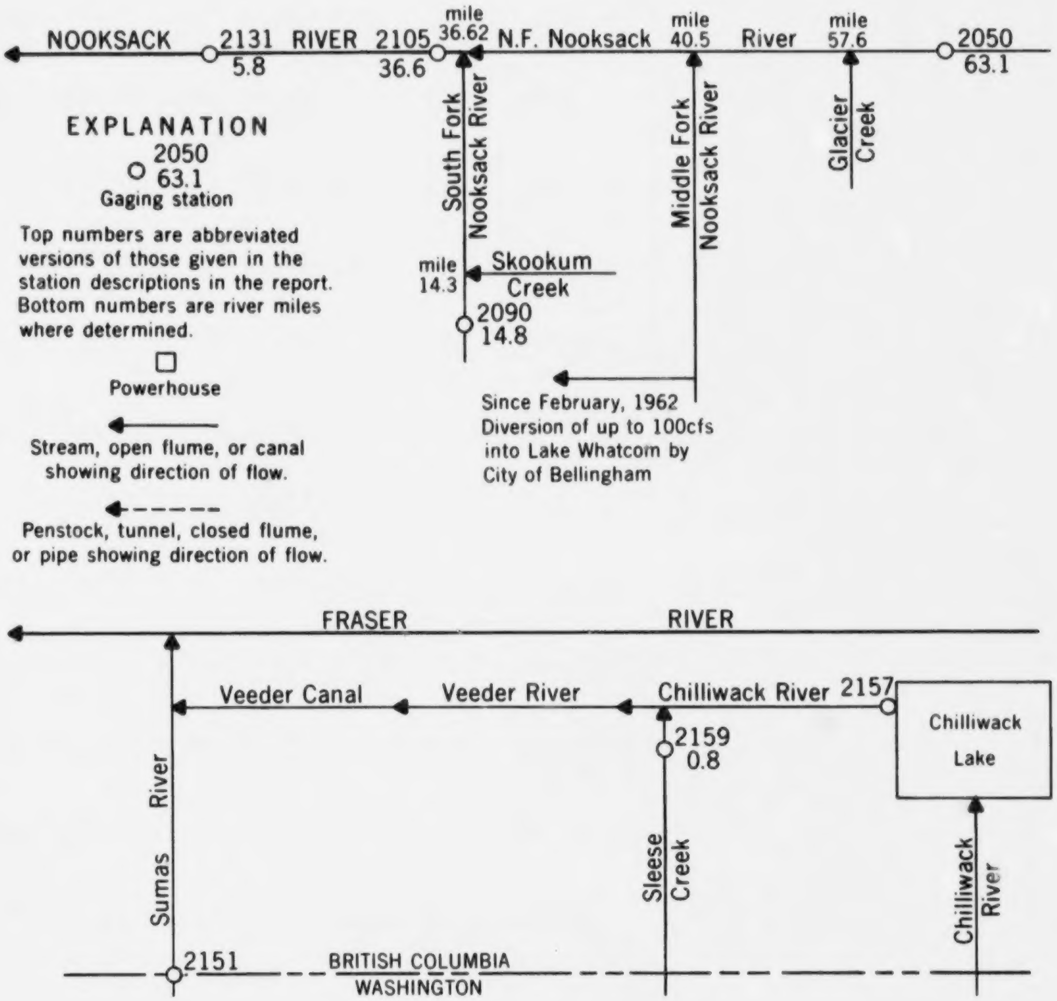
NOOKSACK
2131
5.8
RIVER
2105
36.6
mile
36.62
N.F. Nooksack
mile
40.5
River
mile
57.6
2050
63.1
South Fork
Nooksack River
Middle Fork
Nooksack River
Glacier
Creek
mile
14.3
Skookum
Creek
2090
14.8
Since February, 1962
Diversion of up to 100cfs
into Lake Whatcom by
City of Bellingham
EXPLANATION
2050
63.1
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
FRASER
RIVER
Veeder Canal
Veeder River
Chilliwack River
2157
Chilliwack
Lake
2159
0.8
Sumas
River
Sleese
Creek
Chilliwack
River
2151
BRITISH COLUMBIA
WASHINGTON

Figure 17. Gaging stations in Nooksack and Fraser River basins.

## 12205000 NORTH FORK NOOKSACK RIVER BELOW CASCADE CREEK, NEAR GLACIER, WA

**LOCATION.**--Lat 48°54'22", long 121°50'35", in SE¼SW¼ sec.36, T.40 N., R.7 E., Whatcom County, Hydrologic Unit 17110004, Mt. Baker National Forest, on right bank 0.2 mi (0.3 km) downstream from Cascade Creek, 0.3 mi (0.5 km) downstream from Deadhorse Creek, 4.8 mi (7.7 km) east of Glacier, 5.5 mi (8.8 km) upstream from Glacier Creek, and at mile 63.1 (101.5 km).

**DRAINAGE AREA.**--105 mi$^2$ (272 km$^2$).

**PERIOD OF RECORD.**--October 1937 to current year. Published as Nooksack River above Cascade Creek, near Glacier 1937-58 and as Nooksack River below Cascade Creek, near Glacier 1958-66.

**REVISED RECORDS.**--WSP 1092: 1946.

**GAGE.**--Water-stage recorder. Altitude of gage is 1,245 ft (379.5 m), from river-profile map. Supplementary water-stage recorder on left bank at datum 1.19 ft (0.363 m) lower, used as principal gage prior to Oct. 1, 1953, and Oct. 8, 1958, to Sept. 30, 1959.

**REMARKS.**--Records good except those for period of no gage-height record which are fair. No diversion above station. Some regulation at low flow by powerplant at Excelsior.

**AVERAGE DISCHARGE.**--39 years, 783 ft$^3$/s (22.17 m$^3$/s), 101.27 in/yr (2,572 mm/yr), 567,300 acre-ft/yr (699 hm$^3$/yr).

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 10,300 ft$^3$/s (292 m$^3$/s) Nov. 26, 1949, gage height, 10.50 ft (3.200 m), supplementary gage, from rating curve extended above 2,900 ft$^3$/s (82.1 m$^3$/s) on basis of contracted opening measurement at gage height 8.13 ft (2.478 m), supplementary gage; minimum, 60 ft$^3$/s (1.70 m$^3$/s) Mar. 12, 1969; minimum daily, 110 ft$^3$/s (3.12 m$^3$/s) Feb. 13, 1949.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges above base of 3,600 ft$^3$/s (102 m$^3$/s) and maximum (*) from high-water mark in well:

| Date | Time | Discharge (ft$^3$/) | (m$^3$/s) | Gage height (ft) | (m) | Date | Time | Discharge (ft$^3$/s) | (m$^3$/s) | Gage height (ft) | (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | unknown | 7,700 | 218 | 9.68 | 2.950 | Nov. 24 | unknown | unknown | --- | unknown | ---- |
| Nov. 14 | unknown | 5,960 | 168 | 8.60 | 2.621 | Dec. 3 | unknown | *7,720 | 219 | *9.69 | 2.954 |

Minimum discharge, 50 ft$^3$/s (1.416 m$^3$/s) Mar. 11, gage height, 2.03 ft (0.619 m) caused by regulation; minimum daily discharge, 130 ft$^3$/s (3.68 m$^3$/s) Mar. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 416 | 650 | 1000 | 819 | 610 | 198 | 345 | 1010 | 783 | 1540 | 1520 | 1060 |
| 2 | 458 | 800 | 3000 | 717 | 575 | 160 | 301 | 1360 | 702 | 1400 | 1500 | 946 |
| 3 | 893 | 1500 | 5000 | 620 | 530 | 159 | 278 | 1160 | 630 | 1520 | 1560 | 861 |
| 4 | 962 | 2000 | 4000 | 652 | 468 | 155 | 282 | 1100 | 585 | 2150 | 1450 | 900 |
| 5 | 1450 | 1800 | 2000 | 663 | 445 | 159 | 329 | 1070 | 615 | 2090 | 1380 | 2060 |
| 6 | 938 | 1400 | 1300 | 550 | 422 | 151 | 445 | 972 | 729 | 2260 | 1460 | 1660 |
| 7 | 570 | 1100 | 1000 | 501 | 396 | 151 | 463 | 1100 | 939 | 2370 | 1560 | 1170 |
| 8 | 462 | 900 | 1100 | 520 | 379 | 148 | 620 | 1520 | 1260 | 2590 | 1560 | 900 |
| 9 | 430 | 780 | 1500 | 468 | 349 | 148 | 759 | 1700 | 1440 | 2110 | 1370 | 771 |
| 10 | 600 | 700 | 1200 | 440 | 337 | 173 | 707 | 1940 | 1580 | 1790 | 1310 | 741 |
| 11 | 420 | 600 | 900 | 418 | 353 | 162 | 735 | 1690 | 1390 | 1700 | 1410 | 735 |
| 12 | 360 | 560 | 760 | 383 | 427 | 151 | 658 | 1290 | 1300 | 1520 | 1440 | 674 |
| 13 | 340 | 560 | 660 | 349 | 391 | 141 | 575 | 1310 | 1040 | 1350 | 1370 | 625 |
| 14 | 360 | 1200 | 600 | 463 | 383 | 134 | 520 | 1260 | 933 | 1340 | 1190 | 707 |
| 15 | 700 | 2000 | 560 | 861 | 349 | 130 | 477 | 1160 | 1430 | 1560 | 1210 | 724 |
| 16 | 1000 | 1400 | 500 | 1590 | 370 | 134 | 413 | 1290 | 2040 | 1900 | 1350 | 777 |
| 17 | 4000 | 1000 | 460 | 1240 | 370 | 217 | 383 | 1420 | 1920 | 2010 | 1200 | 783 |
| 18 | 2500 | 800 | 431 | 946 | 353 | 356 | 362 | 1100 | 2100 | 1890 | 999 | 747 |
| 19 | 1500 | 700 | 400 | 765 | 313 | 301 | 337 | 952 | 2420 | 1790 | 1080 | 813 |
| 20 | 1000 | 630 | 387 | 647 | 295 | 258 | 383 | 868 | 2120 | 1860 | 1480 | 825 |
| 21 | 750 | 560 | 366 | 590 | 266 | 228 | 345 | 855 | 1810 | 1660 | 1130 | 855 |
| 22 | 620 | 530 | 353 | 641 | 258 | 329 | 317 | 992 | 1640 | 1440 | 972 | 837 |
| 23 | 550 | 570 | 337 | 620 | 337 | 278 | 305 | 1060 | 1460 | 1710 | 959 | 759 |
| 24 | 500 | 2000 | 555 | 545 | 301 | 309 | 405 | 1050 | 1290 | 1960 | 1280 | 707 |
| 25 | 550 | 1300 | 501 | 496 | 274 | 321 | 379 | 1060 | 1200 | 1820 | 1470 | 707 |
| 26 | 600 | 900 | 2000 | 472 | 247 | 274 | 365 | 1060 | 1010 | 1700 | 1240 | 735 |
| 27 | 550 | 750 | 1380 | 1010 | 236 | 255 | 370 | 2270 | 972 | 1480 | 1110 | 735 |
| 28 | 500 | 620 | 978 | 753 | 221 | 228 | 468 | 1790 | 1280 | 1400 | 1210 | 741 |
| 29 | 900 | 540 | 1410 | 771 | 209 | 202 | 540 | 1320 | 1720 | 1600 | 1110 | 713 |
| 30 | 1300 | 520 | 1460 | 707 | --- | 262 | 685 | 1100 | 1690 | 1520 | 1080 | 658 |
| 31 | 700 | --- | 1020 | 641 | --- | 477 | --- | 881 | --- | 1570 | 1030 | --- |
| TOTAL | 26875 | 29370 | 37098 | 20848 | 10454 | 6779 | 13531 | 38710 | 40028 | 54600 | 39990 | 25926 |
| MEAN | 867 | 979 | 1197 | 673 | 360 | 219 | 451 | 1249 | 1334 | 1761 | 1290 | 864 |
| MAX | 4000 | 2000 | 5000 | 1590 | 610 | 477 | 759 | 2270 | 2420 | 2590 | 1560 | 2060 |
| MIN | 340 | 520 | 337 | 349 | 209 | 130 | 278 | 855 | 585 | 1340 | 959 | 625 |
| CFSM | 8.26 | 9.32 | 11.4 | 6.41 | 3.43 | 2.09 | 4.30 | 11.9 | 12.7 | 16.8 | 12.3 | 8.23 |
| IN. | 9.52 | 10.41 | 13.14 | 7.39 | 3.70 | 2.40 | 4.79 | 13.71 | 14.18 | 19.34 | 14.17 | 9.19 |
| AC-FT | 53310 | 58260 | 73580 | 41350 | 20740 | 13450 | 26840 | 76780 | 79400 | 108300 | 79320 | 51420 |

CAL YR 1975 TOTAL 309704 MEAN 849 MAX 5000 MIN 170 CFSM 8.09 IN 109.72 AC-FT 614300
WTR YR 1976 TOTAL 344210 MEAN 940 MAX 5000 MIN 130 CFSM 8.95 IN 121.95 AC-FT 682700

NOTE.--No gage-height record Oct. 9 to Dec. 17.

## 12209000 SOUTH FORK NOOKSACK RIVER NEAR WICKERSHAM, WA

**LOCATION.**--Lat 48°39'52", long 122°09'56", in lot 2, SW¼SW¼ sec.26, T.37 N., R.5 E., Whatcom County, Hydrologic Unit 17110004, on left bank 0.5 mi (0.8 km) upstream from Skookum Creek, 3.7 mi (6.0 km) east of Wickersham, and at mile 14.8 (23.8 km).

**DRAINAGE AREA.**--103 mi² (267 km²).

**PERIOD OF RECORD.**--October 1933 to current year.

**REVISED RECORDS.**--WSP 832: 1935-36.

**GAGE.**--Water-stage recorder. Altitude of gage is 385 ft (117.3 m), from river-profile map. Prior to July 9, 1934, nonrecording gage, at same site and datum.

**REMARKS.**--Records good except those for period of no gage-height record, which are fair. No regulation or diversion above station.

**AVERAGE DISCHARGE.**--43 years, 747 ft³/s (21.16 m³/s), 98.49 in/yr (2,502 mm/yr), 541,200 acre-ft/yr (667 hm³/yr).

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 19,300 ft³/s (547 m³/s) Nov. 3, 1955, gage height, 13.40 ft (4.084 m), from rating curve extended above 11,000 ft³/s (312 m³/s); minimum, 66 ft³/s (1.87 m³/s) Oct. 9, 1940, Sept. 11-13, 1944; minimum gage height, 1.80 ft (0.549 m) Sept. 16, 17, 1973.

**EXTREMES FOR CURRRENT YEAR.**--Peak discharges above base of 5,200 ft³/s (147 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 17 | 0400 | 8,870 | 251 | 9.11 | 2.777 | Nov. 24 | 0800 | 9,260 | 262 | 9.27 | 2.825 |
| Oct. 29 | 2200 | 5,410 | 153 | 7.44 | 2.268 | Dec. 2 | 2200 | *17,200 | 487 | *12.07 | 3.679 |
| Nov. 15 | 0800 | 6,650 | 188 | 8.09 | 2.466 | Dec. 26 | 1000 | 7,940 | 225 | 8.70 | 2.652 |

Minimum discharge, 100 ft³/s (2.83 m³/s) Oct. 3, gage height, 1.95 ft (0.594 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 108 | 1720 | 2790 | 984 | 740 | 400 | 537 | 1590 | 876 | 968 | 417 | 295 |
| 2 | 106 | 1940 | 9920 | 848 | 660 | 370 | 451 | 2080 | 726 | 883 | 398 | 279 |
| 3 | 152 | 2810 | 10100 | 827 | 600 | 350 | 424 | 1390 | 630 | 855 | 442 | 258 |
| 4 | 485 | 1890 | 6410 | 1480 | 550 | 340 | 451 | 1280 | 618 | 1220 | 387 | 244 |
| 5 | 1490 | 1790 | 2140 | 1360 | 510 | 330 | 548 | 1260 | 684 | 1070 | 368 | 991 |
| 6 | 855 | 1410 | 1420 | 968 | 490 | 330 | 897 | 1120 | 834 | 1140 | 360 | 718 |
| 7 | 376 | 1510 | 1110 | 841 | 470 | 320 | 785 | 1260 | 1020 | 1100 | 413 | 469 |
| 8 | 297 | 1280 | 2920 | 939 | 450 | 320 | 1170 | 1700 | 1170 | 1190 | 508 | 354 |
| 9 | 490 | 1020 | 2900 | 855 | 440 | 320 | 1260 | 1830 | 1140 | 883 | 394 | 305 |
| 10 | 672 | 806 | 1850 | 897 | 450 | 400 | 1090 | 2060 | 1160 | 732 | 353 | 278 |
| 11 | 368 | 672 | 1230 | 1020 | 500 | 430 | 1260 | 1780 | 984 | 732 | 359 | 261 |
| 12 | 293 | 618 | 968 | 738 | 1000 | 380 | 1000 | 1280 | 1100 | 654 | 358 | 249 |
| 13 | 256 | 820 | 848 | 650 | 750 | 350 | 785 | 1300 | 827 | 576 | 352 | 238 |
| 14 | 269 | 3580 | 726 | 1000 | 700 | 330 | 726 | 1260 | 702 | 564 | 337 | 291 |
| 15 | 918 | 3720 | 672 | 2000 | 700 | 320 | 678 | 1160 | 1510 | 678 | 327 | 271 |
| 16 | 1160 | 1710 | 582 | 3500 | 900 | 320 | 559 | 1430 | 2420 | 792 | 536 | 245 |
| 17 | 7330 | 1240 | 531 | 2500 | 900 | 450 | 505 | 1360 | 1520 | 771 | 652 | 236 |
| 18 | 3040 | 932 | 510 | 1600 | 800 | 1300 | 470 | 960 | 1600 | 714 | 408 | 226 |
| 19 | 2670 | 732 | 495 | 1200 | 700 | 738 | 456 | 918 | 1550 | 630 | 604 | 217 |
| 20 | 1470 | 612 | 490 | 1000 | 600 | 612 | 732 | 911 | 1150 | 678 | 1600 | 213 |
| 21 | 992 | 531 | 470 | 850 | 550 | 531 | 594 | 918 | 1020 | 618 | 599 | 206 |
| 22 | 764 | 510 | 495 | 920 | 500 | 690 | 505 | 1040 | 1030 | 480 | 430 | 201 |
| 23 | 636 | 2130 | 606 | 850 | 600 | 618 | 460 | 976 | 911 | 548 | 376 | 195 |
| 24 | 531 | 4850 | 1960 | 760 | 570 | 726 | 618 | 1120 | 750 | 648 | 403 | 189 |
| 25 | 862 | 1810 | 1270 | 700 | 540 | 976 | 636 | 1290 | 806 | 588 | 439 | 181 |
| 26 | 953 | 2070 | 4500 | 650 | 500 | 666 | 553 | 1210 | 690 | 537 | 454 | 177 |
| 27 | 918 | 1220 | 1910 | 2000 | 470 | 600 | 618 | 1790 | 654 | 460 | 473 | 172 |
| 28 | 813 | 911 | 1450 | 1400 | 420 | 526 | 806 | 1280 | 834 | 433 | 489 | 169 |
| 29 | 2860 | 726 | 2550 | 1100 | 400 | 451 | 939 | 939 | 1020 | 475 | 390 | 167 |
| 30 | 3230 | 820 | 2040 | 950 | --- | 451 | 1200 | 960 | 890 | 420 | 339 | 164 |
| 31 | 1420 | --- | 1230 | 820 | --- | 690 | --- | 813 | --- | 424 | 316 | --- |
| TOTAL | 36784 | 46390 | 67093 | 36207 | 17460 | 15635 | 21713 | 40265 | 30826 | 22461 | 14281 | 8459 |
| MEAN | 1187 | 1546 | 2164 | 1168 | 602 | 504 | 724 | 1299 | 1028 | 725 | 461 | 282 |
| MAX | 7330 | 4850 | 10100 | 3500 | 1000 | 1300 | 1260 | 2080 | 2420 | 1220 | 1600 | 991 |
| MIN | 106 | 510 | 470 | 650 | 400 | 320 | 424 | 813 | 618 | 420 | 316 | 164 |
| CFSM | 11.5 | 15.0 | 21.0 | 11.3 | 5.84 | 4.89 | 7.03 | 12.6 | 9.98 | 7.04 | 4.48 | 2.74 |
| IN. | 13.28 | 16.75 | 24.23 | 13.08 | 6.31 | 5.65 | 7.84 | 14.54 | 11.13 | 8.11 | 5.16 | 3.06 |
| AC-FT | 72960 | 92010 | 133100 | 71820 | 34630 | 31010 | 43070 | 79870 | 61140 | 44550 | 28330 | 16780 |

CAL YR 1975 TOTAL 320014 MEAN 877 MAX 10100 MIN 106 CFSM 8.51 IN 115.58 AC-FT 634700
WTR YR 1976 TOTAL 357574 MEAN 977 MAX 10100 MIN 106 CFSM 9.49 IN 129.14 AC-FT 709200

NOTE.--No gage-height record Jan. 13 to Mar. 17.

## 12210500 NOOKSACK RIVER AT DEMING, WA

LOCATION.--Lat 48°48'38", long 122°12'13", in lot 12, NE¼SE¼ sec.6, T.38 N., R.5 E., Whatcom County, Hydrologic Unit 17110004, on left bank 800 ft (240 m) downstream from South Fork, 1.1 m (1.8 km) southeast of Deming, and at mile 36.6 (58.9 km).

DRAINAGE AREA.--584 mi² (1,513 km²), includes 5 mi² (13 km²) in Canada.

PERIOD OF RECORD.--September 1910 to March 1911 (gage heights only), July 1935 to September 1957, October 1957 to September 1964, discharges above 3,500 ft³/s (99.1 m³/s) only, October 1964 to current year. Published as "near Deming" 1910-11. Chemical analyses July 1959 to September 1971, October 1973 to September 1974, at site 5.7 mi (9.2 km) downstream from gaging station.

REVISED RECORDS.--WSP 1286: 1951. WSP 1736: 1937(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 204.2 ft (62.24 m), above mean sea level. Prior to Dec. 5, 1910, nonrecording gage at site 1.1 mi (1.8 km) downstream at different datum. Dec. 5, 1910, to Mar. 31, 1911, nonrecording gage at site 5 mi (8.0 km) downstream at different datum. July 20 to Sept. 19, 1935, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period November 25 to December 27, which are fair. Slight regulation by powerplant at Excelsior. Since February 1962, city of Bellingham diverts up to about 100 ft³/s (2.83 m³/s) from the Middle Fork for municipal use.

AVERAGE DISCHARGE.--34 years (water years 1936-57, 1965-76), 3,414 ft3/s (96.68 m³/s), 79.39 in/yr (2,017 mm/yr) 2,473,000 acre-ft/yr (3,050 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,200 ft³/s (1,220 m³/s) Feb. 10, 1951, gage height, 15.69 ft (4.782 m), from rating curve extended above 25,000 ft³/s (708 m³/s); maximum gage height, 15.89 ft (4.843 m) Dec. 3, 1975; minimum recorded, 502 ft³/s (14.2 m³/s) Nov. 29, 1952, gage height, 3.72 ft (1.134 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Peak of Mar. 15, 1908, reportedly reached a stage of 20 ft (6.1 m). Peak of Feb. 27, 1932, reached a stage of 16.8 ft (5.12 m), from floodmarks, discharge, 49,300 ft³/s (1,400 m³/s). Peak of November 1909 reached a stage about equal to that of the 1932 peak.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 16,000 ft³/s (453 m³/s) and maximum (*) from high-water mark in well:

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Oct. 18 | 0200 | 27,800 | 787 | 13.56 | 4.133 |
| Nov. 15 | 1100 | 20,300 | 575 | 11.88 | 3.621 |
| Nov. 24 | 1100 | 23,200 | 657 | 12.55 | 3.825 |
| Dec. 3 | unknown | *40,300 | 1,140 | *15.89 | 4.843 |
| Dec. 9 | unknown | unknown | ----- | unknown | ----- |
| Dec. 26 | 1400 | 17,300 | 490 | 11.06 | 3.371 |

Minimum discharge, 1,060 ft³/s (30.0 m³/s) Oct. 1, gage height, 4.51 ft (1.375 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1100 | 6770 | 8000 | 5500 | 3750 | 1900 | 2930 | 5210 | 3420 | 4930 | 3460 | 2590 |
| 2 | 1190 | 6970 | 20000 | 4690 | 3500 | 1730 | 2520 | 6870 | 3100 | 4540 | 3320 | 2400 |
| 3 | 1770 | 10100 | 36000 | 4280 | 3240 | 1620 | 2350 | 5440 | 2800 | 4470 | 3540 | 2220 |
| 4 | 2790 | 9100 | 30000 | 5770 | 2880 | 1540 | 2370 | 5000 | 2640 | 5920 | 3300 | 2240 |
| 5 | 4960 | 8300 | 20000 | 6890 | 2640 | 1530 | 2570 | 5030 | 2680 | 5890 | 3120 | 5230 |
| 6 | 4800 | 7400 | 12000 | 5320 | 2520 | 1500 | 3380 | 4520 | 3080 | 6140 | 3120 | 5290 |
| 7 | 2420 | 6400 | 8000 | 4600 | 2380 | 1470 | 3220 | 4810 | 3710 | 6260 | 3400 | 3660 |
| 8 | 1900 | 5260 | 11000 | 5110 | 2300 | 1460 | 4150 | 6140 | 4400 | 6870 | 3710 | 2820 |
| 9 | 2300 | 4240 | 16000 | 4810 | 2180 | 1450 | 4860 | 6790 | 4570 | 5780 | 3200 | 2450 |
| 10 | 3300 | 3350 | 13000 | 4600 | 2220 | 1760 | 4210 | 7500 | 4860 | 4830 | 2950 | 2270 |
| 11 | 2090 | 2730 | 10000 | 5320 | 2520 | 1940 | 4540 | 6820 | 4350 | 4520 | 3100 | 2180 |
| 12 | 1700 | 2440 | 7200 | 4360 | 4710 | 1690 | 3930 | 5340 | 4330 | 4080 | 3120 | 2050 |
| 13 | 1520 | 2780 | 5800 | 3800 | 3540 | 1580 | 3320 | 5260 | 3710 | 3660 | 3060 | 1930 |
| 14 | 1440 | 10900 | 4900 | 5320 | 3360 | 1480 | 3080 | 5160 | 3180 | 3540 | 2770 | 2060 |
| 15 | 3750 | 15100 | 4500 | 12900 | 3300 | 1420 | 3060 | 4710 | 4930 | 4020 | 2680 | 2080 |
| 16 | 3230 | 9350 | 4000 | 14600 | 3990 | 1420 | 2660 | 5340 | 9060 | 4760 | 3420 | 2050 |
| 17 | 19900 | 6200 | 3700 | 10000 | 4040 | 2050 | 2480 | 5620 | 6900 | 4930 | 3480 | 2060 |
| 18 | 18300 | 4540 | 3400 | 7720 | 3880 | 3800 | 2350 | 4380 | 6900 | 4570 | 2730 | 1960 |
| 19 | 12500 | 3780 | 3300 | 5840 | 3240 | 2800 | 2240 | 3950 | 7560 | 4170 | 2880 | 2030 |
| 20 | 9070 | 3240 | 3150 | 4780 | 2880 | 2370 | 3120 | 3710 | 6510 | 4380 | 6170 | 2080 |
| 21 | 6650 | 2840 | 2950 | 4180 | 2570 | 2180 | 2800 | 3580 | 5620 | 4130 | 3730 | 2080 |
| 22 | 5380 | 2710 | 2800 | 4630 | 2420 | 2770 | 2460 | 3950 | 5260 | 3440 | 2980 | 2060 |
| 23 | 4600 | 6470 | 2900 | 4510 | 2790 | 2660 | 2270 | 3910 | 4710 | 3690 | 2680 | 1760 |
| 24 | 4000 | 17800 | 6300 | 3800 | 2750 | 2710 | 2660 | 3880 | 4150 | 4350 | 3080 | 1830 |
| 25 | 5040 | 13000 | 7000 | 3400 | 2570 | 3640 | 2750 | 4450 | 4080 | 4150 | 3400 | 1820 |
| 26 | 5480 | 10000 | 11500 | 3220 | 2380 | 2980 | 2450 | 4300 | 3540 | 3950 | 3340 | 1850 |
| 27 | 4980 | 8000 | 8800 | 8840 | 2240 | 2970 | 2610 | 6930 | 3240 | 3520 | 3080 | 1800 |
| 28 | 4520 | 6000 | 6520 | 5870 | 2160 | 2800 | 3140 | 6060 | 3840 | 3260 | 3360 | 1800 |
| 29 | 8770 | 5000 | 9440 | 5530 | 2030 | 2460 | 3460 | 4540 | 4880 | 3600 | 3040 | 1800 |
| 30 | 11700 | 4500 | 10700 | 4690 | --- | 2430 | 4100 | 4170 | 4760 | 3440 | 2790 | 1730 |
| 31 | 6850 | --- | 6860 | 4060 | --- | 3710 | --- | 3540 | --- | 3440 | 2660 | --- |
| TOTAL | 168000 | 205270 | 299720 | 178940 | 84980 | 67820 | 92040 | 156910 | 136770 | 139230 | 100670 | 70380 |
| MEAN | 5419 | 6842 | 9668 | 5772 | 2930 | 2188 | 3068 | 5062 | 4559 | 4491 | 3247 | 2346 |
| MAX | 19900 | 17800 | 36000 | 14600 | 4710 | 3800 | 4860 | 7500 | 9060 | 6870 | 6170 | 5290 |
| MIN | 1100 | 2440 | 2800 | 3220 | 2030 | 1420 | 2240 | 3540 | 2640 | 3260 | 2660 | 1730 |
| CFSM | 9.28 | 11.7 | 16.6 | 9.88 | 5.02 | 3.75 | 5.25 | 8.67 | 7.81 | 7.69 | 5.56 | 4.02 |
| IN. | 10.70 | 13.08 | 19.09 | 11.40 | 5.41 | 4.32 | 5.86 | 9.99 | 8.71 | 8.87 | 6.41 | 4.48 |
| AC-FT | 333200 | 407200 | 594500 | 354900 | 168600 | 134500 | 182600 | 311200 | 271300 | 276200 | 199700 | 139600 |

CAL YR 1975 TOTAL 1545290 MEAN 4234 MAX 36000 MIN 1060 CFSM 7.25 IN 98.43 AC-FT 3065000
WTR YR 1976 TOTAL 1700730 MEAN 4647 MAX 36000 MIN 1100 CFSM 7.96 IN 108.33 AC-FT 3373000

NOTE.--No gage-height record Nov. 25 to Dec. 17.

## 12213100 NOOKSACK RIVER AT FERNDALE, WA

LOCATION.--Lat 48°50'42", long 122°35'17", in NE¼NW¼ sec.29, T.39 N., R.2 E., Whatcom County, Hydrologic Unit 17110004, on right bank 300 ft (91 m) downstream from highway bridge at Ferndale and 5.8 mi (9.3 km) upstream from mouth.

DRAINAGE AREA.--786 mi² (2,036 km²), of which 48.9 mi² (126.7 km²) is in Canada.

PERIOD OF RECORD.--October 1966 to current year. Chemical analyses October 1961 to September 1970.

GAGE.--Water-stage recorder. Datum of gage is 4.61 ft (1.405 m) above mean sea level. Prior to July 18, 1968, at site 220 ft (67 m) upstream at datum 4.21 ft (1.283 m) higher.

REMARKS.--Records good. Slight regulation by powerplant at Excelsior. City of Bellingham diverts up to about 100 ft³/s (2.83 m³/s) at times from Middle Fork Nooksack River for municipal use.

AVERAGE DISCHARGE.--10 years, 4,215 ft³/s (119.4 m³/s), 72.82 in/yr (1,850 mm/yr), 3,054,000 acre-ft/yr (3,770 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,400 ft³/s (1,060 m³/s) Dec. 3, 1975, gage height, 21.97 ft (6.696 m); minimum, 718 ft³/s (20.3 m³/s) Nov. 5, 1974, gage height, 3.03 ft (0.924 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 16,000 ft³/s (453 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 18 | 1200 | 23,500 | 666 | 16.85 | 5.136 | Dec. 9 | 1100 | 17,900 | 507 | 14.86 | 4.529 |
| Nov. 15 | 1800 | 19,800 | 561 | 15.35 | 4.679 | Dec. 26 | 2000 | 16,500 | 467 | 14.07 | 4.289 |
| Nov. 24 | 2200 | 21,500 | 609 | 16.04 | 4.889 | Jan. 16 | 1500 | 17,800 | 504 | 14.69 | 4.478 |
| Dec. 3 | 2300 | *37,400 | 1,060 | *21.97 | 6.696 | | | | | | |

Minimum discharge, 1,080 ft³/s (30.6 m³/s) Oct. 1, gage height, 3.56 ft (1.085 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1150 | 6480 | 7760 | 5740 | 4460 | 2790 | 3940 | 5150 | 3860 | 5120 | 3750 | 2810 |
| 2 | 1170 | 6240 | 21500 | 4840 | 4190 | 2540 | 3320 | 7350 | 3620 | 5270 | 3540 | 2690 |
| 3 | 1430 | 10300 | 35500 | 4370 | 3910 | 2390 | 3050 | 6500 | 3300 | 4670 | 3740 | 2470 |
| 4 | 2460 | 10100 | 34800 | 5440 | 3520 | 2310 | 2930 | 5410 | 3060 | 5740 | 3630 | 2400 |
| 5 | 2600 | 8150 | 20700 | 7420 | 3260 | 2260 | 3000 | 5410 | 3000 | 6630 | 3410 | 3840 |
| 6 | 6410 | 9000 | 11300 | 6120 | 3100 | 2250 | 3620 | 5020 | 3220 | 6380 | 3340 | 7160 |
| 7 | 2630 | 7450 | 8440 | 5310 | 2960 | 2230 | 3860 | 4970 | 3690 | 6750 | 3540 | 4420 |
| 8 | 1960 | 6730 | 10800 | 5440 | 2900 | 2230 | 3940 | 6160 | 4470 | 7140 | 3900 | 3340 |
| 9 | 1770 | 5770 | 17200 | 5380 | 2800 | 2200 | 5800 | 7390 | 4870 | 6690 | 3610 | 2800 |
| 10 | 3130 | 4830 | 13700 | 4850 | 2820 | 2240 | 4900 | 8040 | 5320 | 5350 | 3250 | 2550 |
| 11 | 2250 | 4180 | 9370 | 5910 | 3160 | 2700 | 5070 | 8220 | 5050 | 4960 | 3280 | 2400 |
| 12 | 1800 | 3780 | 7210 | 5170 | 6140 | 2400 | 4830 | 6160 | 4710 | 4620 | 3350 | 2300 |
| 13 | 1590 | 3630 | 6080 | 4370 | 5370 | 2300 | 4030 | 5510 | 4440 | 4180 | 3320 | 2160 |
| 14 | 1470 | 10000 | 5250 | 4940 | 4410 | 2200 | 3630 | 5740 | 3630 | 3910 | 3140 | 2160 |
| 15 | 2970 | 15400 | 4910 | 10400 | 4460 | 2120 | 3950 | 5130 | 4200 | 4110 | 2880 | 2360 |
| 16 | 2500 | 11600 | 4400 | 16600 | 5200 | 2040 | 3520 | 5410 | 10600 | 4830 | 3470 | 2240 |
| 17 | 13900 | 7410 | 3970 | 12800 | 5330 | 2230 | 3200 | 6280 | 8430 | 5250 | 3720 | 2240 |
| 18 | 21500 | 5770 | 3700 | 9530 | 5080 | 3760 | 3020 | 5010 | 7570 | 5050 | 3250 | 2160 |
| 19 | 13000 | 4820 | 3520 | 7190 | 4280 | 3690 | 2840 | 4420 | 8110 | 4580 | 2800 | 2140 |
| 20 | 10000 | 4210 | 3360 | 5860 | 3800 | 2990 | 3670 | 4090 | 7670 | 4610 | 6410 | 2210 |
| 21 | 6460 | 3720 | 3200 | 5080 | 3430 | 2910 | 3860 | 3920 | 6250 | 4690 | 4560 | 2200 |
| 22 | 5030 | 3470 | 3100 | 4990 | 3180 | 3100 | 3200 | 4150 | 5680 | 3960 | 3430 | 2200 |
| 23 | 4150 | 5170 | 3160 | 5500 | 3290 | 3650 | 2900 | 4260 | 5390 | 3810 | 2990 | 2130 |
| 24 | 3470 | 17600 | 4510 | 4620 | 3560 | 3320 | 3070 | 4070 | 4650 | 4650 | 3160 | 2020 |
| 25 | 3430 | 14600 | 6030 | 4130 | 3600 | 4350 | 3630 | 4990 | 4550 | 4640 | 3380 | 1960 |
| 26 | 5000 | 11000 | 10200 | 3860 | 3530 | 3920 | 3090 | 4410 | 4190 | 4370 | 3770 | 1970 |
| 27 | 4450 | 8750 | 12000 | 8400 | 3230 | 3840 | 2990 | 6810 | 3750 | 3960 | 3280 | 1960 |
| 28 | 3950 | 6290 | 7250 | 7630 | 3210 | 3890 | 3360 | 7630 | 4000 | 3570 | 3580 | 1930 |
| 29 | 5550 | 5100 | 7150 | 6550 | 2970 | 3430 | 3660 | 5250 | 5030 | 3750 | 3390 | 1930 |
| 30 | 13500 | 4560 | 12000 | 5710 | --- | 3100 | 4200 | 4760 | 5370 | 3780 | 3060 | 1900 |
| 31 | 7950 | --- | 7570 | 4950 | --- | 4260 | --- | 4140 | --- | 3650 | 2920 | --- |
| TOTAL | 158530 | 226110 | 309740 | 199100 | 111150 | 89680 | 110080 | 171760 | 151680 | 150670 | 108850 | 77050 |
| MEAN | 5114 | 7537 | 9992 | 6423 | 3833 | 2893 | 3669 | 5541 | 5056 | 4860 | 3511 | 2568 |
| MAX | 21500 | 17600 | 35500 | 16600 | 6140 | 4350 | 5800 | 8220 | 10600 | 7140 | 6410 | 7160 |
| MIN | 1150 | 3470 | 3100 | 3860 | 2800 | 2090 | 2840 | 3920 | 3000 | 3570 | 2800 | 1900 |
| CFSM | 6.51 | 9.59 | 12.7 | 8.17 | 4.88 | 3.68 | 4.67 | 7.05 | 6.43 | 6.18 | 4.47 | 3.27 |
| IN. | 7.50 | 10.70 | 14.66 | 9.42 | 5.26 | 4.24 | 5.21 | 8.13 | 7.18 | 7.13 | 5.15 | 3.65 |
| AC-FT | 314400 | 448500 | 614400 | 394900 | 220500 | 177900 | 218300 | 340700 | 300900 | 298900 | 215900 | 152800 |

CAL YR 1975 TOTAL 1677840 MEAN 4597 MAX 35500 MIN 1090 CFSM 5.85 IN 79.41 AC-FT 3328000
WTR YR 1976 TOTAL 1864400 MEAN 5094 MAX 35500 MIN 1150 CFSM 6.48 IN 88.24 AC-FT 3698000

## 12215100 SUMAS RIVER NEAR HUNTINGDON, BRITISH COLUMBIA

LOCATION.--Lat 49°00'09", long 122°13'50", on highway bridge at international boundary, 1.5 mi (2.4 km) east of Huntingdon.

DRAINAGE AREA.--57.6 mi² (149.2 km²).

PERIOD OF RECORD.--October 1960 to December 1968, January 1970 to current year, in reports of Geological Survey, October 1935 to June 1949 (fragmentary gage heights only), October 1950 to September 1952 (gage heights only) and October 1952 to September 1960 in reports of Department of Northern Affairs and National Resources, Canada. Chemical analyses November 1970 to September 1971, October 1973 to September 1974.

GAGE.--Water-stage recorder.

COOPERATION.--Records furnished by Department of the Environment, Canada.

AVERAGE DISCHARGE.--20 years (1953-68, 1971, 1974-76), 117 ft³/s (3.313 m³/s) 84,770 acre-ft/yr (105 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,650 ft³/s (46.7 m³/s) Dec. 3, 1975; maximum gage height, 13.50 ft (4.115 m) Feb. 11, 1951 (from high-water mark); minimum discharge, 1.1 ft³/s (0.031 m³/s) Aug. 28, 1958, gage height, 1.72 ft (0.524 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,650 ft³/s (46.7 m³/s) Dec. 3, gage height, 11.05 ft (3.368 m); minimum daily, 24 ft³/s (0.68 m³/s) Oct. 1-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 24 | 237 | 203 | 255 | 238 | 191 | 249 | 110 | 118 | 65 | 45 | 50 |
| 2 | 24 | 171 | 736 | 221 | 221 | 167 | 192 | 110 | 108 | 69 | 46 | 49 |
| 3 | 24 | 159 | 1550 | 206 | 209 | 153 | 166 | 109 | 98 | 66 | 39 | 49 |
| 4 | 24 | 160 | 1500 | 294 | 195 | 140 | 151 | 104 | 90 | 68 | 41 | 51 |
| 5 | 32 | 141 | 997 | 464 | 181 | 142 | 143 | 111 | 84 | 70 | 40 | 70 |
| 6 | 45 | 130 | 550 | 425 | 172 | 145 | 147 | 117 | 80 | 67 | 39 | 109 |
| 7 | 39 | 141 | 405 | 413 | 168 | 145 | 147 | 106 | 76 | 66 | 40 | 93 |
| 8 | 32 | 153 | 544 | 394 | 167 | 144 | 141 | 100 | 73 | 68 | 43 | 72 |
| 9 | 33 | 149 | 1160 | 470 | 162 | 140 | 168 | 96 | 71 | 69 | 44 | 64 |
| 10 | 42 | 135 | 830 | 382 | 160 | 140 | 153 | 97 | 83 | 66 | 40 | 60 |
| 11 | 44 | 119 | 552 | 440 | 185 | 153 | 142 | 110 | 80 | 63 | 38 | 57 |
| 12 | 37 | 108 | 411 | 460 | 391 | 144 | 149 | 100 | 77 | 62 | 36 | 56 |
| 13 | 34 | 106 | 334 | 368 | 435 | 135 | 135 | 96 | 77 | 60 | 37 | 56 |
| 14 | 33 | 214 | 281 | 365 | 301 | 129 | 128 | 95 | 73 | 60 | 43 | 60 |
| 15 | 41 | 319 | 278 | 609 | 279 | 123 | 161 | 90 | 86 | 59 | 41 | 64 |
| 16 | 52 | 274 | 255 | 1010 | 373 | 120 | 166 | 88 | 196 | 58 | 44 | 61 |
| 17 | 101 | 220 | 222 | 708 | 411 | 122 | 145 | 100 | 210 | 57 | 47 | 58 |
| 18 | 206 | 185 | 201 | 512 | 308 | 134 | 138 | 95 | 143 | 56 | 46 | 57 |
| 19 | 229 | 158 | 187 | 403 | 252 | 135 | 131 | 88 | 111 | 56 | 48 | 55 |
| 20 | 146 | 139 | 175 | 330 | 223 | 131 | 186 | 84 | 96 | 56 | 77 | 53 |
| 21 | 105 | 126 | 165 | 290 | 204 | 133 | 238 | 82 | 87 | 55 | 76 | 52 |
| 22 | 86 | 118 | 161 | 279 | 190 | 141 | 180 | 80 | 80 | 54 | 58 | 51 |
| 23 | 75 | 161 | 166 | 325 | 181 | 175 | 155 | 78 | 75 | 53 | 53 | 51 |
| 24 | 66 | 414 | 204 | 277 | 230 | 170 | 155 | 79 | 72 | 50 | 55 | 51 |
| 25 | 84 | 419 | 253 | 244 | 249 | 201 | 162 | 86 | 71 | 50 | 57 | 50 |
| 26 | 186 | 327 | 469 | 229 | 252 | 214 | 146 | 93 | 70 | 50 | 59 | 49 |
| 27 | 181 | 282 | 566 | 509 | 235 | 210 | 134 | 117 | 66 | 45 | 57 | 48 |
| 28 | 140 | 223 | 353 | 515 | 235 | 243 | 126 | 110 | 64 | 43 | 57 | 48 |
| 29 | 196 | 181 | 357 | 358 | 211 | 223 | 119 | 104 | 62 | 48 | 55 | 47 |
| 30 | 446 | 161 | 399 | 298 | --- | 188 | 113 | 115 | 62 | 50 | 53 | 46 |
| 31 | 391 | --- | 328 | 261 | --- | 236 | --- | 122 | --- | 46 | 51 | --- |
| TOTAL | 3198 | 5830 | 14792 | 12314 | 7018 | 4967 | 4666 | 3072 | 2739 | 1805 | 1505 | 1737 |
| MEAN | 103 | 194 | 477 | 397 | 242 | 160 | 156 | 99.1 | 91.3 | 58.2 | 48.5 | 57.9 |
| MAX | 446 | 419 | 1550 | 1010 | 435 | 243 | 249 | 122 | 210 | 70 | 77 | 109 |
| MIN | 24 | 106 | 161 | 206 | 160 | 120 | 113 | 78 | 62 | 43 | 36 | 46 |
| AC-FT | 6340 | 11560 | 29340 | 24420 | 13920 | 9850 | 9260 | 6090 | 5430 | 3580 | 2990 | 3450 |

CAL YR 1975 TOTAL 52870 MEAN 145 MAX 1550 MIN 16 AC-FT 104900
WTR YR 1976 TOTAL 63643 MEAN 174 MAX 1550 MIN 24 AC-FT 126200

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

### 12215700 CHILLIWACK RIVER NEAR VEDDER CROSSING, BRITISH COLUMBIA

LOCATION.--Lat 49°05'02", long 121°27'24", at outlet of Chilliwack Lake 30 mi (48.3 km) upstream from Vedder Crossing.

DRAINAGE AREA.--131 mi² (339 km²).

PERIOD OF RECORD.--October 1960 to current year in reports of Geological Survey. May 1923 to June 1951 and May 1957 to September 1960 in reports of Department of Northern Affairs and National Resources, Canada. Prior to October 1969, published as 12214200.

GAGE.--Water-stage recorder.

COOPERATION.--Records furnished by Department of the Environment, Canada.

AVERAGE DISCHARGE.--44 years (water years 1924-47, 1949-50, 1959-76) 677 ft³/s (19.00 m³/s) 490,500 acre-ft/yr (599 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,100 ft³/s (116 m³/s) June 10, 1972, gage height, 9.34 ft (2.847 m); minimum daily, 104 ft³/s (2.95 m³/s) Oct. 21, 1923 and on many days during months of February and March 1929, December 1936 and February 1937.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,400 ft³/s (96.3 m³/s) Dec. 4, gage height, 8.96 ft (2.731 m); minimum daily, 231 ft³/s (6.54 m³/s) Mar. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 262 | 737 | 868 | 999 | 686 | 303 | 264 | 507 | 1270 | 1630 | 1580 | 914 |
| 2 | 257 | 765 | 1260 | 942 | 669 | 292 | 263 | 663 | 1170 | 1590 | 1540 | 892 |
| 3 | 266 | 904 | 2340 | 883 | 649 | 280 | 261 | 813 | 1080 | 1560 | 1530 | 861 |
| 4 | 297 | 1250 | 3290 | 838 | 626 | 270 | 260 | 914 | 1000 | 1610 | 1500 | 833 |
| 5 | 351 | 1510 | 3100 | 815 | 597 | 263 | 263 | 990 | 938 | 1770 | 1470 | 925 |
| 6 | 428 | 1650 | 2580 | 770 | 567 | 259 | 276 | 1020 | 902 | 1910 | 1450 | 1080 |
| 7 | 440 | 1600 | 2140 | 722 | 544 | 253 | 294 | 1060 | 925 | 2130 | 1470 | 1090 |
| 8 | 429 | 1470 | 1860 | 696 | 519 | 248 | 318 | 1190 | 1010 | 2340 | 1530 | 1030 |
| 9 | 411 | 1320 | 1790 | 665 | 499 | 249 | 359 | 1390 | 1150 | 2400 | 1500 | 954 |
| 10 | 397 | 1180 | 1740 | 635 | 480 | 259 | 397 | 1620 | 1290 | 2220 | 1430 | 883 |
| 11 | 386 | 1050 | 1600 | 617 | 466 | 260 | 444 | 1820 | 1380 | 2040 | 1390 | 820 |
| 12 | 369 | 929 | 1430 | 588 | 472 | 248 | 484 | 1770 | 1400 | 1890 | 1370 | 764 |
| 13 | 350 | 849 | 1290 | 551 | 461 | 242 | 503 | 1690 | 1360 | 1750 | 1350 | 714 |
| 14 | 339 | 893 | 1150 | 540 | 452 | 235 | 512 | 1670 | 1290 | 1640 | 1300 | 679 |
| 15 | 353 | 1230 | 1040 | 561 | 439 | 232 | 511 | 1600 | 1270 | 1600 | 1230 | 651 |
| 16 | 374 | 1410 | 926 | 630 | 431 | 231 | 500 | 1560 | 1420 | 1670 | 1230 | 630 |
| 17 | 818 | 1360 | 841 | 706 | 427 | 238 | 485 | 1590 | 1600 | 1810 | 1220 | 617 |
| 18 | 1510 | 1240 | 769 | 740 | 428 | 244 | 471 | 1550 | 1780 | 1900 | 1160 | 602 |
| 19 | 1590 | 1130 | 709 | 736 | 411 | 240 | 454 | 1450 | 2080 | 1910 | 1100 | 594 |
| 20 | 1520 | 1010 | 657 | 715 | 392 | 235 | 449 | 1350 | 2310 | 1920 | 1130 | 588 |
| 21 | 1370 | 910 | 607 | 690 | 373 | 233 | 438 | 1260 | 2260 | 1890 | 1120 | 586 |
| 22 | 1220 | 830 | 567 | 671 | 359 | 236 | 424 | 1220 | 2110 | 1780 | 1060 | 580 |
| 23 | 1070 | 789 | 537 | 656 | 358 | 241 | 409 | 1230 | 1950 | 1700 | 1010 | 574 |
| 24 | 939 | 954 | 522 | 630 | 359 | 249 | 402 | 1230 | 1790 | 1760 | 1000 | 563 |
| 25 | 847 | 1120 | 521 | 605 | 358 | 260 | 398 | 1220 | 1660 | 1810 | 1030 | 551 |
| 26 | 782 | 1170 | 602 | 579 | 349 | 262 | 387 | 1200 | 1520 | 1800 | 1060 | 541 |
| 27 | 712 | 1120 | 806 | 634 | 342 | 263 | 382 | 1370 | 1400 | 1740 | 1030 | 532 |
| 28 | 655 | 1030 | 852 | 668 | 332 | 260 | 387 | 1630 | 1350 | 1660 | 1010 | 522 |
| 29 | 645 | 933 | 886 | 689 | 317 | 253 | 404 | 1600 | 1440 | 1620 | 999 | 516 |
| 30 | 721 | 866 | 1050 | 698 | --- | 250 | 437 | 1500 | 1580 | 1600 | 966 | 506 |
| 31 | 734 | --- | 1070 | 696 | --- | 264 | --- | 1380 | --- | 1590 | 940 | --- |
| TOTAL | 20841 | 33209 | 39400 | 21565 | 13362 | 7852 | 11836 | 41057 | 43685 | 56240 | 38705 | 21592 |
| MEAN | 672 | 1107 | 1271 | 696 | 461 | 253 | 395 | 1324 | 1456 | 1814 | 1249 | 720 |
| MAX | 1590 | 1650 | 3290 | 999 | 686 | 303 | 512 | 1820 | 2310 | 2400 | 1580 | 1090 |
| MIN | 257 | 737 | 521 | 540 | 317 | 231 | 260 | 507 | 902 | 1560 | 940 | 506 |
| AC-FT | 41340 | 65870 | 78150 | 42770 | 26500 | 15570 | 23480 | 81440 | 86650 | 111600 | 76770 | 42830 |

CAL YR 1975 TOTAL 293223 MEAN 803 MAX 3290 MIN 168 AC-FT 581600
WTR YR 1976 TOTAL 349344 MEAN 954 MAX 3290 MIN 231 AC-FT 692900

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

## 12215900 SLEESE CREEK NEAR VEDDER CROSSING, BRITISH COLUMBIA

LOCATION.--Lat 49°04'21", long 121°41'58", approximately 200 ft (61 m) upstream from unnamed creek, 0.8 mi (1.3 km) upstream from mouth and 13.5 mi (21.7 km) east of Vedder Crossing.

DRAINAGE AREA.--62.7 mi$^2$ (162.4 km$^2$).

PERIOD OF RECORD.--October 1960 to November 1962, August 1963 to March 1964, and May 1964 to current year in reports of Geological Survey. March 1957 to September 1960 in reports of Department of Northern Affairs and National Resources, Canada. Prior to October 1969, published as 12214300.

GAGE.--Water-stage recorder. Prior to Aug. 1, 1963, at site 0.7 mi (1.1 km) downstream.

COOPERATION.--Records furnished by Department of the Environment, Canada.

AVERAGE DISCHARGE.--13 years (water years 1960-62, 1965-74) 361 ft$^3$/s (10.22 m$^3$/s) 261,500 acre-ft/yr (322 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,860 ft$^3$/s (109 m$^3$/s) Oct. 21, 1963, gage height, 7.81 ft (2.380 m); minimum, 19.8 ft$^3$/s (0.56 m$^3$/s) Oct. 5, 1960, gage height, 2.24 ft (0.683 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 2,330 ft$^3$/s (66.0 m$^3$/s) Dec. 2; minimum daily, 71 ft$^3$/s (2.01 m$^3$/s) Mar. 16.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | --- | 657 | 446 | 345 | 106 | 185 | 658 | 414 | 763 | 643 | 430 |
| 2 | | --- | 2330 | 395 | 308 | 96 | 171 | 840 | 377 | 671 | 624 | 388 |
| 3 | | 924 | 2200 | 338 | 284 | 89 | 169 | 690 | 345 | 710 | 645 | 340 |
| 4 | | 1080 | 1680 | 336 | 252 | 84 | 180 | 647 | 315 | 965 | 600 | 343 |
| 5 | | 1080 | 976 | 330 | 229 | 82 | 219 | 600 | 346 | 987 | 578 | 1020 |
| 6 | | 788 | 697 | 285 | 213 | 81 | 287 | 555 | 428 | 1140 | 613 | 718 |
| 7 | | 549 | 476 | 259 | 197 | 79 | 283 | 669 | 550 | 1170 | 670 | 519 |
| 8 | | 434 | 773 | 267 | 187 | 77 | 342 | 950 | 723 | 1180 | 656 | 410 |
| 9 | | 362 | 1360 | 249 | 176 | 75 | 397 | 1040 | 810 | 901 | 546 | 355 |
| 10 | | 314 | 903 | 240 | 165 | 92 | 402 | 1180 | 844 | 745 | 526 | 316 |
| 11 | | 275 | 618 | 239 | 180 | 90 | 435 | 940 | 726 | 736 | 570 | 296 |
| 12 | | 251 | 487 | 215 | 209 | 81 | 380 | 692 | 655 | 676 | 577 | 277 |
| 13 | | 279 | 414 | 194 | 180 | 76 | 324 | 732 | 546 | 597 | 537 | 260 |
| 14 | | 733 | 347 | 236 | 180 | 73 | 294 | 718 | 505 | 595 | 449 | 272 |
| 15 | | 1400 | 302 | 439 | 172 | 72 | 261 | 652 | 756 | 752 | 452 | 272 |
| 16 | | 727 | 262 | 897 | 191 | 71 | 228 | 738 | 1190 | 939 | 522 | 282 |
| 17 | | 505 | 239 | 703 | 184 | 102 | 208 | 776 | 1100 | 960 | 488 | 279 |
| 18 | | 391 | 230 | 542 | 180 | 137 | 192 | 598 | 1230 | 878 | 405 | 268 |
| 19 | | 334 | 218 | 445 | 162 | 120 | 181 | 524 | 1420 | 814 | 498 | 280 |
| 20 | | 288 | 208 | 382 | 148 | 114 | 190 | 479 | 1120 | 825 | 784 | 283 |
| 21 | | 259 | 197 | 342 | 138 | 107 | 175 | 469 | 899 | 736 | 520 | 281 |
| 22 | | 243 | 190 | 355 | 132 | 127 | 168 | 530 | 812 | 596 | 444 | 269 |
| 23 | | 329 | 185 | 338 | 159 | 135 | 158 | 561 | 716 | 715 | 415 | 249 |
| 24 | | 1410 | 252 | 290 | 154 | 142 | 177 | 540 | 639 | 863 | 466 | 235 |
| 25 | | 757 | 247 | 262 | 144 | 148 | 170 | 522 | 588 | 792 | 597 | 235 |
| 26 | | 620 | 822 | 259 | 136 | 138 | 163 | 541 | 522 | 731 | 536 | 236 |
| 27 | | 466 | 645 | 594 | 128 | 133 | 184 | 1250 | 510 | 636 | 491 | 231 |
| 28 | | 367 | 495 | 461 | 123 | 126 | 239 | 880 | 662 | 606 | 521 | 227 |
| 29 | | 314 | 786 | 448 | 114 | 118 | 307 | 639 | 912 | 692 | 484 | 222 |
| 30 | | 298 | 763 | 406 | --- | 146 | 434 | 535 | 865 | 656 | 454 | 206 |
| 31 | | --- | 557 | 364 | --- | 230 | --- | 457 | --- | 675 | 437 | --- |
| TOTAL | | --- | 20516 | 11556 | 5370 | 3347 | 7503 | 21602 | 21525 | 24702 | 16748 | 9999 |
| MEAN | | --- | 662 | 373 | 185 | 108 | 250 | 697 | 718 | 797 | 540 | 333 |
| MAX | | --- | 2330 | 897 | 345 | 230 | 435 | 1250 | 1420 | 1180 | 784 | 1020 |
| MIN | | --- | 185 | 194 | 114 | 71 | 158 | 457 | 315 | 595 | 405 | 206 |
| AC-FT | | --- | 40690 | 22920 | 10650 | 6640 | 14880 | 42850 | 42690 | 49000 | 33220 | 19830 |

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

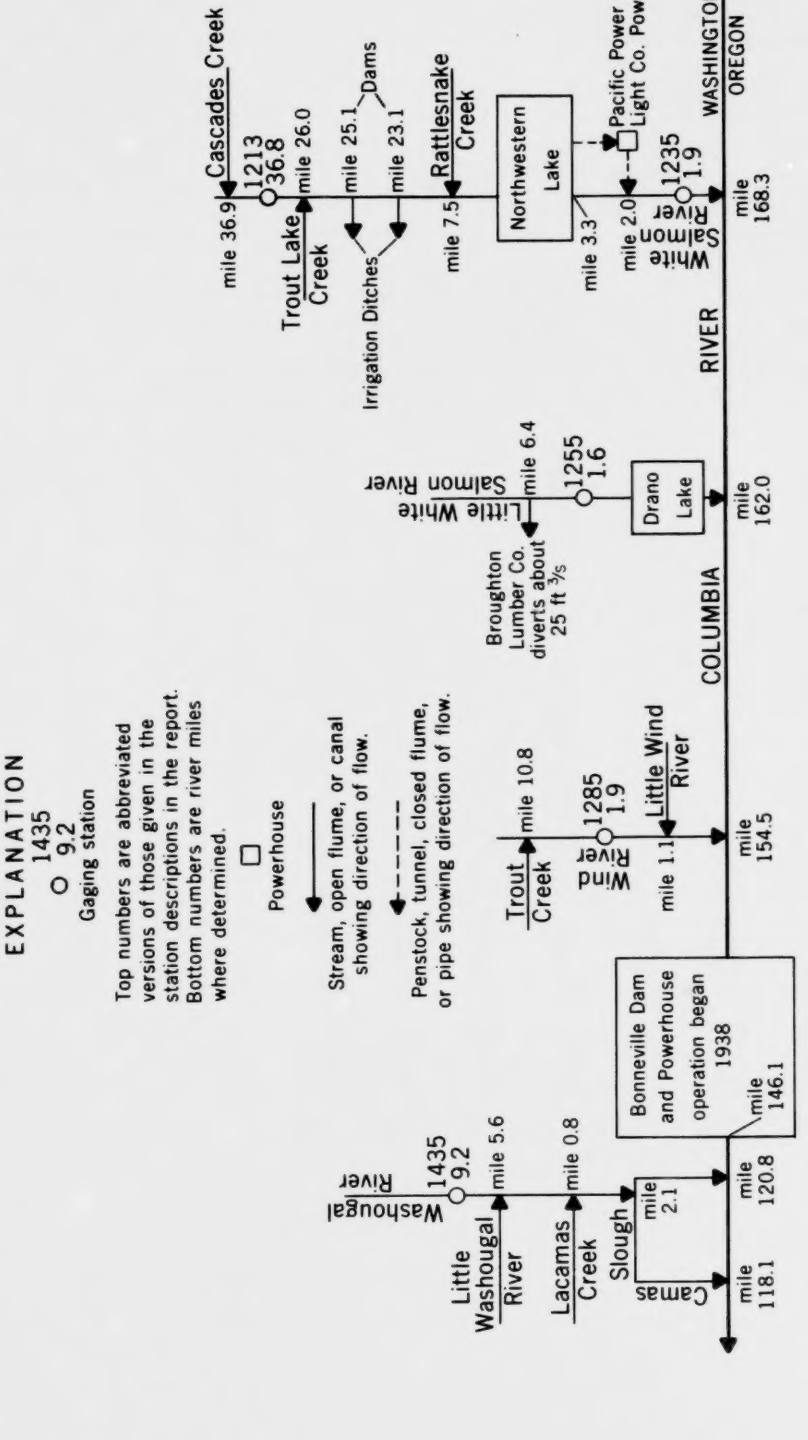
EXPLANATION
1435
9.2
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Cascades Creek
mile 36.9
1213
36.8
mile 26.0
Trout Lake Creek
mile 25.1
mile 23.1
Dams
Irrigation Ditches
Rattlesnake Creek
mile 7.5
Northwestern Lake
mile 3.3
Pacific Power and Light Co. Powerhouse
mile 2.0
1235
1.9
White Salmon River
mile 168.3
WASHINGTON
OREGON
RIVER
Little White Salmon River
mile 6.4
1255
1.6
Broughton Lumber Co. diverts about 25 ft³/s
Drano Lake
mile 162.0
COLUMBIA
Trout Creek
mile 10.8
1285
1.9
Little Wind River
Wind River
mile 1.1
mile 154.5
Bonneville Dam and Powerhouse operation began 1938
mile 146.1
Washougal River
1435
9.2
mile 5.6
Little Washougal River
Lacamas Creek
mile 0.8
Camas Slough
mile 2.1
mile 120.8
mile 118.1

Figure 18. Gaging stations in lower Columbia River basin between White Salmon and Washougal Rivers.

## 14121300 WHITE SALMON RIVER BELOW CASCADE CREEK, NEAR TROUT LAKE, WA

LOCATION.--Lat 46°06'14", long 121°36'27", in SW¼SW¼ sec.7, T.7 N., R.10 E., Skamania County, Hydrologic Unit 17070105, Gifford Pinchot National Forest, on right bank 100 ft (30 m) downstream from Cascade Creek, 7.9 mi (12.7 km) northwest of Trout Lake, and at mile 36.8 (59.2 km).

DRAINAGE AREA.--32.4 $mi^2$ (83.9 $km^2$).

PERIOD OF RECORD.--July 1957 to current year.

REVISED RECORDS.--WSP 1638: Drainage area. WRD Wash. 1971: 1958-61(P), 1963(P), 1965(P), 1966(M), 1967-69(P), 1970(M).

GAGE.--Water-stage recorder. Altitude of gage is 3,080 ft (939 m), from topographic map.

REMARKS.--Records good. Probably some small diversions above station for irrigation. No regulation.

AVERAGE DISCHARGE.--19 years, 155 $f^3/s$ (4.390 $m^3/s$), 64.97 in/yr (1,650 mm/yr), 112,300 acre-ft/yr (138 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,270 $ft^3/s$ (36.0 $m^3/s$) Dec. 4, 1975, gage height, 4.24 ft (1.292 m), from rating curve extended above 600 $ft^3/s$ (17.0 $m^3/s$); minimum, 48 $ft^3/s$ (1.36 $m^3/s$) Mar. 24, 1964, gage height, 1.15 ft (0.351 m), probably result of pondage upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 360 $ft^3/s$ (10.2 $m^3/s$) and maximum (*) from rating curve extended as explained above:

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 15 | 0400 | 434 | 12.3 | 2.76 | 0.841 | Dec. 26 | 1000 | 478 | 13.5 | 2.87 | 0.875 |
| Dec. 4 | 0700 | *1,270 | 36.0 | *4.24 | 1.292 | May 2 | 0100 | 566 | 16.0 | 3.07 | 0.936 |

Minimum discharge, 81 $ft^3/s$ (2.29 $m^3/s$) Mar. 29, gage height, 1.55 ft (0.472 m).

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 103 | 125 | 517 | 196 | 134 | 91 | 84 | 357 | [illegible] | 202 | 182 | 149 |
| 2 | 101 | 149 | 591 | 193 | 132 | 93 | 84 | 466 | 172 | 185 | 182 | 136 |
| 3 | 110 | 159 | 640 | 193 | 130 | 95 | 88 | 379 | 164 | 185 | 179 | 134 |
| 4 | 112 | 141 | 897 | 213 | 121 | 91 | 93 | 342 | 159 | 190 | 177 | 134 |
| 5 | 106 | 141 | 474 | 190 | 125 | 91 | 105 | 342 | 156 | 196 | 179 | 132 |
| 6 | 101 | 134 | 402 | 172 | 123 | 88 | 114 | 339 | 161 | 205 | 185 | 121 |
| 7 | 97 | 132 | 540 | 169 | 121 | 88 | 117 | 371 | 172 | 208 | 213 | 112 |
| 8 | 97 | 130 | 446 | 179 | 114 | 88 | 185 | 434 | 202 | 282 | 185 | 110 |
| 9 | 136 | 130 | 375 | 164 | 110 | 91 | 159 | 478 | 205 | 231 | 177 | 112 |
| 10 | 112 | 114 | 335 | 161 | 108 | 89 | 156 | 495 | 208 | 208 | 177 | 119 |
| 11 | 105 | 110 | 298 | 164 | 108 | 86 | 174 | 458 | 202 | 205 | 172 | 123 |
| 12 | 97 | 108 | 270 | 156 | 130 | 84 | 159 | 430 | 199 | 211 | 177 | 127 |
| 13 | 97 | 110 | 252 | 144 | 127 | 88 | 151 | 450 | 185 | 202 | 172 | 110 |
| 14 | 95 | 161 | 228 | 190 | 117 | 88 | 149 | 430 | 179 | 202 | 161 | 119 |
| 15 | 99 | 273 | 216 | 317 | 112 | 86 | 139 | 414 | 193 | 202 | 190 | 112 |
| 16 | 97 | 161 | 202 | 267 | 121 | 89 | 130 | 438 | 264 | 211 | 174 | 112 |
| 17 | 99 | 139 | 190 | 237 | 112 | 97 | 123 | 402 | 240 | 219 | 156 | 112 |
| 18 | 103 | 127 | 185 | 219 | 110 | 97 | 119 | 360 | 240 | 219 | 151 | 112 |
| 19 | 106 | 123 | 177 | 205 | 105 | 91 | 117 | 342 | 255 | 211 | 146 | 125 |
| 20 | 101 | 119 | 164 | 193 | 103 | 89 | 151 | 325 | 243 | 208 | 159 | 134 |
| 21 | 114 | 114 | 159 | 167 | 103 | 88 | 132 | 317 | 234 | 193 | 159 | 132 |
| 22 | 105 | 112 | 156 | 156 | 103 | 93 | 125 | 328 | 219 | 196 | 156 | 123 |
| 23 | 97 | 127 | 161 | 149 | 103 | 93 | 123 | 335 | 211 | 205 | 156 | 114 |
| 24 | 95 | 156 | 211 | 136 | 103 | 89 | 130 | 325 | 211 | 205 | 161 | 110 |
| 25 | 123 | 136 | 177 | 134 | 101 | 86 | 123 | 309 | 199 | 205 | 154 | 108 |
| 26 | 119 | 167 | 371 | 136 | 99 | 86 | 123 | 286 | 190 | 196 | 136 | 110 |
| 27 | 110 | 139 | 258 | 182 | 97 | 86 | 139 | 264 | 193 | 188 | 136 | 112 |
| 28 | 112 | 125 | 222 | 159 | 99 | 86 | 149 | 234 | 205 | 188 | 146 | 123 |
| 29 | 134 | 119 | 255 | 146 | 95 | 89 | 169 | 219 | 211 | 196 | 141 | 117 |
| 30 | 177 | 141 | 240 | 139 | --- | 86 | 234 | 211 | 199 | 196 | 146 | 110 |
| 31 | 132 | --- | 211 | 134 | --- | 88 | --- | 199 | --- | 193 | 154 | --- |
| TOTAL | 3392 | 4122 | 9820 | 5560 | 3266 | 2770 | 4044 | 11079 | 6053 | 6343 | 5139 | 3604 |
| MEAN | 109 | 137 | 317 | 179 | 113 | 89.4 | 135 | 357 | 202 | 205 | 166 | 120 |
| MAX | 177 | 273 | 897 | 317 | 134 | 97 | 234 | 495 | 264 | 282 | 213 | 149 |
| MIN | 95 | 108 | 156 | 134 | 95 | 84 | 84 | 199 | 156 | 185 | 136 | 108 |
| AC-FT | 6730 | 8180 | 19480 | 11030 | 6480 | 5490 | 8020 | 21980 | 12010 | 12580 | 10190 | 7150 |

CAL YR 1975 TOTAL 65843 MEAN 180 MAX 897 MIN 76 AC-FT 130600
WTR YR 1976 TOTAL 65192 MEAN 178 MAX 897 MIN 84 AC-FT 129300

## 14123500 WHITE SALMON RIVER NEAR UNDERWOOD, WA

**LOCATION.**--Lat 45°45'08", long 121°31'33", in NW¼NW¼ sec.14, T.3 N., R.10 E., Skamania County, Hydrologic Unit 17070105, on right bank 300 ft (91 m) downstream from bridge, 1,000 ft (305 m) downstream from Pacific Power & Light Co.'s Condit powerplant, 1.7 mi (2.7 km) north of Underwood, and at mile 1.9 (3.1 km).

**DRAINAGE AREA.**--386 mi$^2$ (1,000 km$^2$).

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1912 to February 1913 (published as "at Condit Dam, near Underwood") March 1915 to September 1930, September 1935 to current year.

**REVISED RECORDS.**--WSP 484: 1915-17. WSP 1348: 1936-41(m). WSP 1638: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 112.96 ft (34.340 m) above mean sea level. Prior to March 1913, reference point at dam 1 mi (1.6 km) upstream at different datum. March 1915, to July 16, 1918, water-stage recorder at site 200 ft (61 m) upstream at datum 3.24 ft (0.988 m) higher, and July 17, 1918, to Sept. 30, 1930, at datum 2.24 ft (0.683 m) higher than present datum.

**REMARKS.**--Records excellent. Water diverted to irrigate about 4,500 acres (18 km$^2$) in Trout Lake area. Low and medium flows regulated by powerplant of Pacific Power & Light Co.

**AVERAGE DISCHARGE.**--56 years (water years 1916-30, 1936-76), 1,143 ft$^3$/s (32.37 m$^3$/s), 828,100 acre-ft/yr (1,020 hm$^3$/yr).

**EXTREMES FOR PERIOD OF RECORD.**-- Maximum discharge, 15,300 ft$^3$/s (433 m$^3$/s) Jan. 15, 1974, gage height, 12.85 ft (3.917 m), from rating curve extended above 6,000 ft$^3$/s (170 m$^3$/s); practically no flow at times when powerplant is shut down; minimum daily, 158 ft$^3$/s (4.47 m$^3$/s) Jan. 17, 1950.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 8,250 ft$^3$/s (234 m$^3$/s) Dec. 4, gage height, 9.34 ft (2.847 m); minimum, 42 ft$^3$/s (1.19 m$^3$/s) Nov. 13, gage height, 1.10 ft (0.335 m); minimum daily, 610 ft$^3$/s (17.3 m$^3$/s) Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 610 | 794 | 2460 | 1770 | 1490 | 1570 | 1460 | 1740 | 1390 | 1110 | 849 | 701 |
| 2 | 610 | 782 | 4120 | 1680 | 1460 | 1490 | 1400 | 2070 | 1310 | 1110 | 823 | 672 |
| 3 | 686 | 948 | 3970 | 1620 | 1430 | 1410 | 1370 | 2120 | 1290 | 1080 | 861 | 669 |
| 4 | 647 | 933 | 6750 | 1680 | 1410 | 1390 | 1350 | 1970 | 1270 | 1070 | 892 | 622 |
| 5 | 647 | 836 | 4100 | 1830 | 1340 | 1310 | 1380 | 1840 | 1250 | 1070 | 796 | 636 |
| 6 | 652 | 927 | 2850 | 1720 | 1260 | 1320 | 1470 | 1790 | 1230 | 1050 | 885 | 636 |
| 7 | 692 | 962 | 3420 | 1700 | 1300 | 1270 | 1470 | 1790 | 1240 | 1060 | 808 | 645 |
| 8 | 674 | 860 | 3320 | 1810 | 1320 | 1280 | 1620 | 1880 | 1270 | 1130 | 881 | 646 |
| 9 | 788 | 830 | 2660 | 1880 | 1310 | 1270 | 1680 | 2010 | 1340 | 1160 | 954 | 650 |
| 10 | 794 | 818 | 2180 | 1820 | 1280 | 1330 | 1640 | 2070 | 1330 | 1070 | 830 | 666 |
| 11 | 740 | 788 | 1870 | 2470 | 1260 | 1350 | 1670 | 2050 | 1330 | 1060 | 772 | 643 |
| 12 | 698 | 698 | 1780 | 2240 | 1310 | 1300 | 1670 | 1940 | 1340 | 1050 | 815 | 681 |
| 13 | 647 | 704 | 1620 | 2020 | 1360 | 1330 | 1610 | 1880 | 1320 | 1030 | 783 | 669 |
| 14 | 764 | 787 | 1450 | 2210 | 1330 | 1400 | 1570 | 1920 | 1290 | 1000 | 791 | 695 |
| 15 | 641 | 1440 | 1420 | 3240 | 1300 | 1380 | 1540 | 1820 | 1270 | 1000 | 839 | 697 |
| 16 | 710 | 1470 | 1430 | 3420 | 1680 | 1390 | 1450 | 1820 | 1340 | 1030 | 910 | 685 |
| 17 | 658 | 1170 | 1340 | 2980 | 1910 | 1470 | 1420 | 1830 | 1400 | 983 | 882 | 685 |
| 18 | 620 | 1010 | 1260 | 2650 | 2060 | 1590 | 1380 | 1690 | 1390 | 988 | 858 | 671 |
| 19 | 663 | 930 | 1220 | 2370 | 1870 | 1620 | 1360 | 1600 | 1360 | 913 | 811 | 669 |
| 20 | 625 | 884 | 1200 | 2160 | 1700 | 1540 | 1480 | 1550 | 1370 | 952 | 816 | 669 |
| 21 | 752 | 884 | 1170 | 2010 | 1600 | 1490 | 1470 | 1530 | 1330 | 935 | 783 | 676 |
| 22 | 704 | 831 | 1170 | 1920 | 1540 | 1510 | 1410 | 1510 | 1260 | 904 | 790 | 691 |
| 23 | 686 | 877 | 1180 | 1820 | 1510 | 1520 | 1380 | 1550 | 1250 | 973 | 801 | 641 |
| 24 | 658 | 940 | 1260 | 1730 | 1550 | 1870 | 1390 | 1530 | 1220 | 897 | 777 | 683 |
| 25 | 758 | 996 | 1360 | 1650 | 1670 | 1940 | 1390 | 1550 | 1200 | 919 | 769 | 617 |
| 26 | 800 | 1120 | 2230 | 1600 | 1770 | 1810 | 1340 | 1490 | 1180 | 859 | 742 | 633 |
| 27 | 794 | 1180 | 2720 | 1640 | 1820 | 1700 | 1350 | 1520 | 1140 | 801 | 755 | 637 |
| 28 | 782 | 1060 | 2130 | 1760 | 1750 | 1650 | 1420 | 1500 | 1100 | 846 | 710 | 623 |
| 29 | 692 | 974 | 2020 | 1640 | 1690 | 1530 | 1450 | 1430 | 1100 | 846 | 718 | 628 |
| 30 | 872 | 1110 | 2190 | 1560 | --- | 1480 | 1550 | 1440 | 1110 | 860 | 752 | 706 |
| 31 | 884 | --- | 1960 | 1510 | --- | 1510 | --- | 1410 | --- | 840 | 707 | --- |
| TOTAL | 21948 | 28543 | 69810 | 62110 | 44280 | 46020 | 44140 | 53840 | 38220 | 30596 | 25160 | 19842 |
| MEAN | 708 | 951 | 2252 | 2004 | 1527 | 1485 | 1471 | 1737 | 1274 | 987 | 812 | 661 |
| MAX | 884 | 1470 | 6750 | 3420 | 2060 | 1940 | 1680 | 2120 | 1400 | 1160 | 954 | 706 |
| MIN | 610 | 698 | 1170 | 1510 | 1260 | 1270 | 1340 | 1410 | 1100 | 801 | 707 | 617 |
| AC-FT | 43530 | 56620 | 138500 | 123200 | 87830 | 91280 | 87550 | 106800 | 75810 | 60690 | 49900 | 39360 |

CAL YR 1975 TOTAL 508310 MEAN 1393 MAX 6750 MIN 610 AC-FT 1008000
WTR YR 1976 TOTAL 484509 MEAN 1324 MAX 6750 MIN 610 AC-FT 961000

## 14123500 WHITE SALMON RIVER NEAR UNDERWOOD, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-70, November 1975 to September 1976.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1968 to August 1970.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV 25... | 1235 | 1010 | 61 | 7.5 | 7.4 | 4 | 5 | 12.6 |
| MAR 17... | 1145 | 1450 | 66 | 7.4 | 7.6 | 17 | 7 | 12.0 |
| JUN 15... | 1205 | 1290 | 57 | 6.8 | 10.4 | 8 | 3 | 11.5 |
| AUG 17... | 1220 | 1290 | 66 | 7.5 | 9.9 | 17 | 1 | 11.5 |

| DATE | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| NOV 25... | 440 | 820 | 20 | 0 | 5.0 | 1.8 | 3.6 | 1.5 | 33 |
| MAR 17... | 8320 | 812 | 24 | 0 | 5.4 | 2.6 | 3.6 | 1.6 | 35 |
| JUN 15... | 40 | 14 | 20 | 0 | 4.4 | 2.2 | 2.9 | 1.1 | 32 |
| AUG 17... | >150 | 94 | 24 | 0 | 5.6 | 2.5 | 3.6 | 1.4 | 30 |

| DATE | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV 25... | 27 | 1.7 | 2.9 | .9 | .06 | .06 | .03 | .02 |
| MAR 17... | 29 | 2.2 | 2.1 | 1.1 | .09 | .05 | .03 | .02 |
| JUN 15... | 26 | 8.1 | 2.4 | .8 | .07 | .05 | .02 | .01 |
| AUG 17... | 25 | 1.5 | 5.6 | 1.0 | .11 | .04 | .03 | .02 |

## 14125500 LITTLE WHITE SALMON RIVER NEAR COOK, WA

LOCATION.--Lat 45°43'25", long 121°37'58", in NE¼NE¼ sec.26, T.3 N., R.9 E., Skamania County, Hydrologic Unit 17070105, on left bank 1.5 mi (2.4 km) northeast of Cook, and at mile 1.6 (2.6 km).

DRAINAGE AREA.--134 mi$^2$ (347 km$^2$).

PERIOD OF RECORD.--September 1956 to current year. Records for October to November 1909, published as "near Cooks" in WSP 253, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1568: Drainage area. WSP 1738: 1957(M). WRD Wash. 1972: 1965(M), 1968(M), 1970(M).

GAGE.--Water-stage recorder. Datum of gage is 135.6 ft (41.33 m) above mean sea level (unadjusted).

REMARKS.--Records good except those for periods of no gage-height record, Dec. 25 to Feb. 10 and June 22 to Sept. 27, which are poor. Broughton Lumber Co. diversion above station carries about 25 ft$^3$/s (0.71 m$^3$/s) out of basin into Columbia River. Other diversions above station for water supply, irrigation, and hatchery purposes. Slight regulation.

AVERAGE DISCHARGE.--20 years, 565 ft$^3$/s (16.00 m$^3$/s), 409,300 acre-ft/yr (505 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,250 ft$^3$/s (262 m$^3$/s) Jan. 21, 1972, gage height, 9.92 ft (3.024 m), from rating curve extended above 2,700 ft$^3$/s (76.5 m$^3$/s) on basis of slope-area measurement of peak flow; minimum, 96 ft$^3$ (2.72 m$^3$/s) Oct. 19, 1970; minimum gage height, 0.58 ft (0.177 m) Oct. 29, 1958, Oct. 11, 1963.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft$^3$/s (45.3 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | (m$^3$/s) | Gage height (ft) | (m) | Date | Time | Discharge (ft$^3$/s) | (m$^3$/s) | Gage height (ft) | (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 4 | 1015 | *3,990 | 113 | *7.20 | 2.195 | Jan. 15 | unknown | 3,550 | 101 | 6.88 | 2.097 |
| Dec. 26 | unknown | unknown | --- | unknown | --- | | | | | | |

Minimum daily discharge, 135 ft$^3$/s (3.82 m$^3$/s) Oct. 17.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 141 | 206 | 2130 | 1700 | 850 | 811 | 784 | 651 | 594 | 370 | 250 | 190 |
| 2 | 140 | 203 | 2230 | 1600 | 830 | 776 | 750 | 678 | 583 | 360 | 240 | 180 |
| 3 | 144 | 222 | 1690 | 1400 | 800 | 745 | 720 | 655 | 579 | 350 | 240 | 170 |
| 4 | 149 | 232 | 3130 | 1400 | 770 | 720 | 711 | 631 | 572 | 340 | 240 | 160 |
| 5 | 146 | 230 | 2070 | 1500 | 710 | 699 | 745 | 609 | 568 | 340 | 230 | 160 |
| 6 | 146 | 249 | 1580 | 1400 | 660 | 678 | 798 | 597 | 564 | 340 | 230 | 160 |
| 7 | 143 | 338 | 1900 | 1300 | 680 | 662 | 825 | 594 | 561 | 350 | 230 | 160 |
| 8 | 144 | 378 | 1890 | 1300 | 700 | 647 | 807 | 609 | 554 | 350 | 230 | 160 |
| 9 | 155 | 356 | 1670 | 1400 | 680 | 639 | 798 | 605 | 550 | 340 | 240 | 170 |
| 10 | 155 | 345 | 1500 | 1300 | 660 | 655 | 789 | 609 | 547 | 340 | 240 | 170 |
| 11 | 149 | 338 | 1400 | 1700 | 666 | 655 | 754 | 601 | 550 | 330 | 230 | 170 |
| 12 | 144 | 325 | 1350 | 1600 | 686 | 643 | 720 | 594 | 532 | 320 | 220 | 170 |
| 13 | 141 | 312 | 1320 | 1400 | 686 | 643 | 720 | 590 | 525 | 320 | 220 | 170 |
| 14 | 138 | 362 | 1290 | 1700 | 703 | 670 | 710 | 590 | 522 | 310 | 230 | 170 |
| 15 | 137 | 754 | 1300 | 2100 | 715 | 662 | 720 | 586 | 530 | 310 | 240 | 170 |
| 16 | 137 | 695 | 1250 | 2700 | 1080 | 666 | 682 | 583 | 510 | 310 | 240 | 170 |
| 17 | 135 | 557 | 1260 | 2300 | 1300 | 728 | 662 | 583 | 510 | 300 | 230 | 170 |
| 18 | 141 | 481 | 1230 | 2000 | 1370 | 820 | 643 | 575 | 508 | 300 | 230 | 160 |
| 19 | 140 | 446 | 1190 | 1800 | 1150 | 839 | 631 | 575 | 501 | 300 | 220 | 160 |
| 20 | 137 | 425 | 1160 | 1600 | 1020 | 811 | 711 | 572 | 494 | 290 | 220 | 160 |
| 21 | 152 | 413 | 1130 | 1500 | 946 | 780 | 711 | 568 | 468 | 290 | 220 | 160 |
| 22 | 149 | 413 | 1100 | 1300 | 892 | 816 | 690 | 564 | 440 | 280 | 210 | 150 |
| 23 | 143 | 468 | 1090 | 1200 | 872 | 882 | 670 | 568 | 430 | 280 | 210 | 150 |
| 24 | 140 | 525 | 1090 | 1100 | 916 | 1060 | 670 | 572 | 410 | 280 | 210 | 150 |
| 25 | 170 | 547 | 1100 | 1050 | 971 | 1140 | 658 | 572 | 400 | 270 | 210 | 140 |
| 26 | 214 | 686 | 1600 | 940 | 971 | 1020 | 643 | 568 | 380 | 270 | 210 | 140 |
| 27 | 206 | 711 | 2300 | 1000 | 961 | 956 | 635 | 572 | 370 | 270 | 200 | 141 |
| 28 | 212 | 639 | 2100 | 1100 | 906 | 906 | 635 | 572 | 370 | 260 | 200 | 142 |
| 29 | 220 | 583 | 1900 | 1000 | 853 | 844 | 628 | 579 | 370 | 260 | 200 | 141 |
| 30 | 228 | 737 | 2000 | 920 | --- | 802 | 631 | 586 | 370 | 260 | 200 | 141 |
| 31 | 218 | --- | 1800 | 880 | --- | 811 | --- | 597 | --- | 255 | 195 | --- |
| TOTAL | 4914 | 13176 | 49750 | 45190 | 25004 | 24186 | 21251 | 18405 | 14862 | 9545 | 6915 | 4805 |
| MEAN | 159 | 439 | 1605 | 1458 | 862 | 780 | 708 | 594 | 495 | 308 | 223 | 160 |
| MAX | 228 | 754 | 3130 | 2700 | 1370 | 1140 | 825 | 678 | 594 | 370 | 250 | 190 |
| MIN | 135 | 203 | 1090 | 880 | 660 | 639 | 628 | 564 | 370 | 255 | 195 | 140 |
| AC-FT | 9750 | 26130 | 98680 | 89630 | 49600 | 47970 | 42150 | 36510 | 29480 | 18930 | 13720 | 9530 |

CAL YR 1975 TOTAL 246608 MEAN 676 MAX 3130 MIN 135 AC-FT 489100
WTR YR 1976 TOTAL 238003 MEAN 650 MAX 3130 MIN 135 AC-FT 472100

## 14128500 WIND RIVER NEAR CARSON, WA

**LOCATION.**--Lat 45°44'10", long 121°48'12", in SW¼NE¼ sec.21, T.3 N., R.8 E., Skamania County, Hydrologic Unit 17070105, on right bank 0.8 mi (1.3 km) upstream from Little Wind River, 1.0 mi (1.6 km) northeast of Carson, and 1.9 mi (3.1 km) upstream from mouth. Records include flow of Little Wind River.

**DRAINAGE AREA.**--225 mi² (583 km²), includes that of Little Wind River.

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1934 to September 1976 (discontinued). Monthly discharge only for some periods, published in WSP 1318.

**REVISED RECORDS.**--WSP 964: Drainage area. WSP 1348: 1935-37, 1938(M), 1942-43(M), 1945-46(M).

**GAGE.**--Water-stage recorder. Datum of gage is 112.6 ft (34.32 m) above mean sea level (from river-profile survey).

**REMARKS.**--Records good. Low flow occasionally affected by pondage at Forest Service powerplant on Trout Creek. No diversion above station.

**AVERAGE DISCHARGE.**--42 years, 1,216 ft³/s (34.44 m³/s), 73.39 in/yr (1,864 mm/yr), 881,000 acre-ft/yr (1,090 hm³/yr).

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 45,700 ft³/s (1,290 m³/s) Jan. 15, 1974, gage height, 21.91 ft (6.678 m), from rating extended above 14,000 ft³/s (396 m³/s) on the basis of slope-area measurement of peak flow; minimum, 123 ft³/s (3.48 m³/s) Nov. 30, 1952; minimum gage height, 2.01 ft (0.613 m) Sept. 15, 1976.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges above base of 6,500 ft³/s (184 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 15 | 0915 | 6,760 | 191 | 11.48 | 3.499 | Dec. 26 | 1515 | 7,550 | 214 | 11.91 | 3.630 |
| Dec. 4 | 0815 | *23,000 | 651 | *17.49 | 5.331 | Jan. 15 | 1515 | 8,350 | 236 | 12.31 | 3.752 |

Minimum discharge, 178 ft³/s (5.04 m³/s) Sept. 15, gage height, 2.01 ft (0.613 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 192 | 1310 | 11600 | 2000 | 1260 | 1360 | 1470 | 2210 | 866 | 475 | 266 | 218 |
| 2 | 190 | 1250 | 11900 | 1720 | 1180 | 1230 | 1330 | 2810 | 804 | 456 | 269 | 217 |
| 3 | 212 | 1550 | 8400 | 1550 | 1120 | 1120 | 1250 | 2340 | 748 | 432 | 269 | 216 |
| 4 | 259 | 1390 | 15900 | 2260 | 1050 | 1040 | 1290 | 2010 | 707 | 432 | 262 | 211 |
| 5 | 239 | 1180 | 6640 | 3180 | 962 | 974 | 1510 | 1780 | 677 | 424 | 259 | 212 |
| 6 | 260 | 1340 | 4270 | 2480 | 918 | 926 | 1740 | 1620 | 662 | 417 | 265 | 215 |
| 7 | 243 | 1880 | 6890 | 2340 | 882 | 894 | 1760 | 1600 | 659 | 415 | 309 | 215 |
| 8 | 275 | 1790 | 5680 | 3050 | 858 | 858 | 1890 | 1760 | 662 | 542 | 371 | 210 |
| 9 | 339 | 1530 | 3950 | 2970 | 825 | 870 | 1960 | 1870 | 644 | 475 | 307 | 205 |
| 10 | 330 | 1350 | 3000 | 2660 | 787 | 966 | 1910 | 1870 | 644 | 422 | 283 | 205 |
| 11 | 298 | 1220 | 2430 | 4530 | 787 | 974 | 2150 | 1730 | 629 | 409 | 269 | 201 |
| 12 | 274 | 1080 | 2060 | 3370 | 1050 | 926 | 2040 | 1510 | 653 | 397 | 259 | 216 |
| 13 | 259 | 1010 | 1830 | 2600 | 1140 | 934 | 1780 | 1450 | 626 | 386 | 254 | 217 |
| 14 | 250 | 1610 | 1570 | 4710 | 1280 | 1060 | 1670 | 1400 | 587 | 375 | 266 | 218 |
| 15 | 257 | 5290 | 1460 | 7910 | 1340 | 1060 | 1680 | 1280 | 580 | 365 | 281 | 225 |
| 16 | 253 | 3510 | 1370 | 6150 | 3250 | 1100 | 1470 | 1250 | 659 | 360 | 309 | 213 |
| 17 | 253 | 2390 | 1270 | 4580 | 3990 | 1420 | 1360 | 1220 | 653 | 355 | 299 | 207 |
| 18 | 316 | 1800 | 1180 | 3540 | 3690 | 1780 | 1270 | 1100 | 626 | 347 | 289 | 205 |
| 19 | 334 | 1470 | 1100 | 2800 | 2620 | 1830 | 1220 | 1040 | 626 | 338 | 274 | 201 |
| 20 | 386 | 1260 | 1030 | 2320 | 2070 | 1680 | 1900 | 986 | 596 | 328 | 269 | 198 |
| 21 | 463 | 1120 | 974 | 1980 | 1730 | 1570 | 1920 | 938 | 562 | 323 | 263 | 195 |
| 22 | 508 | 1050 | 938 | 1750 | 1520 | 1760 | 1660 | 914 | 540 | 314 | 254 | 195 |
| 23 | 448 | 1520 | 954 | 1570 | 1490 | 1950 | 1490 | 890 | 515 | 304 | 249 | 196 |
| 24 | 406 | 1860 | 1470 | 1410 | 1720 | 3030 | 1630 | 882 | 505 | 297 | 243 | 194 |
| 25 | 821 | 1840 | 1760 | 1290 | 1930 | 2910 | 1610 | 886 | 492 | 294 | 243 | 190 |
| 26 | 1350 | 2780 | 5740 | 1200 | 1940 | 2300 | 1480 | 829 | 471 | 289 | 245 | 189 |
| 27 | 1280 | 2750 | 4690 | 1520 | 2020 | 2030 | 1440 | 829 | 454 | 285 | 240 | 187 |
| 28 | 1560 | 2110 | 3100 | 1590 | 1870 | 1910 | 1530 | 811 | 449 | 278 | 233 | 187 |
| 29 | 1760 | 1700 | 2750 | 1540 | 1560 | 1650 | 1580 | 783 | 460 | 275 | 231 | 186 |
| 30 | 2260 | 2750 | 2940 | 1430 | --- | 1510 | 1860 | 829 | 452 | 274 | 226 | 185 |
| 31 | 1800 | --- | 2390 | 1330 | --- | 1590 | --- | 836 | --- | 269 | 222 | --- |
| TOTAL | 18075 | 54690 | 121236 | 83330 | 46839 | 45212 | 48850 | 42263 | 18208 | 11352 | 8278 | 6129 |
| MEAN | 583 | 1823 | 3911 | 2688 | 1615 | 1458 | 1628 | 1363 | 607 | 366 | 267 | 204 |
| MAX | 2260 | 5290 | 15900 | 7910 | 3990 | 3030 | 2150 | 2810 | 866 | 542 | 371 | 225 |
| MIN | 190 | 1010 | 938 | 1200 | 787 | 858 | 1220 | 783 | 449 | 269 | 222 | 185 |
| AC-FT | 35850 | 108500 | 240500 | 165300 | 92910 | 89680 | 96890 | 83830 | 36120 | 22520 | 16420 | 12160 |

CAL YR 1975 TOTAL 538681 MEAN 1476 MAX 15900 MIN 190 AC-FT 1068000
WTR YR 1976 TOTAL 504462 MEAN 1378 MAX 15900 MIN 185 AC-FT 1001000

## 14128500 WIND RIVER NEAR CARSON, WA--Continued

## WATER-QUALITY RECORDS

LOCATION.--Samples taken at footbridge 200 ft (61 m) downstream from Little Wind River, 0.8 mi (1.3 km) downstream from gaging station and 1.2 mi (1.9 km) east of Carson.

PERIOD OF RECORD.--Water years 1973, November 1975 to September 1976.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV 25... | 1200 | 1840 | 49 | 7.3 | 7.8 | 13 | 8 | 13.0 |
| MAR 17... | 1110 | 1420 | 44 | 7.5 | 6.5 | 25 | 12 | 12.4 |
| JUN 15... | 1130 | 583 | 50 | 7.0 | 11.1 | 8 | 3 | 11.5 |
| AUG 17... | 1135 | 299 | 60 | 7.6 | 12.9 | 13 | 1 | 11.0 |

| DATE | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| NOV 25... | B100 | <20 | 15 | 0 | 4.5 | .9 | 3.8 | 2.3 | 27 |
| MAR 17... | B80 | <2 | 15 | 0 | 4.0 | 1.1 | 4.0 | .5 | 25 |
| JUN 15... | 66 | <2 | 15 | 0 | 4.2 | 1.2 | 3.8 | .5 | 26 |
| AUG 17... | >40 | <2 | 19 | 0 | 5.6 | 1.3 | 4.8 | .6 | 25 |

| DATE | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV 25... | 22 | 2.2 | 1.4 | 1.5 | .01 | .06 | .03 | .00 |
| MAR 17... | 21 | 1.3 | 1.6 | 1.4 | .02 | .06 | .05 | .02 |
| JUN 15... | 21 | 4.2 | 1.1 | 1.6 | .01 | .04 | .03 | .01 |
| AUG 17... | 21 | 1.0 | 1.6 | 2.7 | .01 | .03 | .04 | .01 |

B Results based upon colony counts outside the ideal range.

## 14128910 COLUMBIA RIVER AT WARRENDALE, OR
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 45°36'45", long 122°01'35", in NW¼SE¼ sec.35, T.2 N., R.6 E., Multnomah County, Hydrologic Unit 17080001, on left bank, 0.1 mi (0.2 km) downstream from Tumalt Creek, 1.0 mi (1.6 km) west of Warrendale, 5.1 mi (8.2 km) downstream from Bonneville Dam, and at mile 141.0 (226.9 km).

DRAINAGE AREA.--240,400 mi² (622,600 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to September 1976.
WATER TEMPERATURES: August 1967 to April 1973, October 1975 to September 1976.

INSTRUMENTATION: Water-quality monitor since October 1975.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum 208 micromhos Nov. 12-14, 1975, Jan. 27, 1976; minimum, 107 micromhos June 5, 1976.
WATER TEMPERATURES: Maximum, 22.5°C Aug. 11-13, 1971; minimum, 1.0°C Feb. 3-11, 1972.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 208 micromhos Nov. 12-14, Jan. 27; minimum, 107 micromhos June 5.
WATER TEMPERATURES: Maximum, 20.0°C July 24-26, Aug. 31, Sept. 1; minimum, 2.0°C Feb. 7-11.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | DIS-CHARGE (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | DIS-SOLVED OXYGEN (MG/L) | FECAL COLI-FORM (COL. PER 100 ML) | STREP-TOCOCCI (COL-ONIES PER 100 ML) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | | |
| 06... | 1055 | 168000 | 193 | 7.7 | 11.8 | 5 | -- | B1 | -- | 68 | 4 | 19 |
| 17... | 1200 | 191000 | 194 | 7.8 | 9.2 | 2 | -- | B17 | 36 | 71 | 0 | 19 |
| DEC | | | | | | | | | | | | |
| 24... | 1030 | 150000 | 163 | 7.5 | 5.0 | 9 | 12.8 | B5 | B1 | 78 | 11 | 22 |
| JAN | | | | | | | | | | | | |
| 29... | 1100 | 223000 | 196 | 7.6 | 4.0 | 15 | 14.0 | B8 | B13 | 74 | 2 | 20 |
| FEB | | | | | | | | | | | | |
| 26... | 1100 | 229000 | 171 | 8.0 | 4.1 | 8 | 14.4 | B1 | B4 | 79 | 6 | 21 |
| APR | | | | | | | | | | | | |
| 01... | 1115 | 232000 | 175 | 7.9 | 6.2 | 10 | 13.4 | 0 | B13 | 78 | 4 | 21 |
| MAY | | | | | | | | | | | | |
| 03... | 1030 | 286000 | 152 | 8.2 | 11.0 | 10 | 12.7 | B7 | B3 | 70 | 3 | 19 |
| JUN | | | | | | | | | | | | |
| 01... | 1130 | 339000 | 114 | 8.1 | 12.8 | 10 | 13.6 | B1 | 28 | 51 | 5 | 14 |
| 29... | 1000 | 283000 | 105 | 8.3 | 16.2 | 2 | 11.8 | <1 | B3 | 44 | 0 | 13 |
| AUG | | | | | | | | | | | | |
| 05... | 1100 | 258000 | 131 | 8.0 | 19.3 | 5 | 10.7 | <1 | B1 | 55 | 4 | 17 |
| 26... | 1100 | 195000 | 131 | 7.4 | 19.0 | 4 | 9.8 | B2 | <1 | 59 | 4 | 17 |

B Results based upon colony counts outside the ideal range.

| DATE | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | SODIUM AD-SORP-TION RATIO | BICAR-BONATE (HCO3) (MG/L) | CAR-BONATE (CO3) (MG/L) | ALKA-LINITY AS CACO3 (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED FLUO-RIDE (F) (MG/L) | DIS-SOLVED SILICA (SIO2) (MG/L) | DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 06... | 5.1 | 7.5 | .4 | 78 | 0 | 64 | 12 | 3.2 | .2 | 8.4 | 93 |
| 17... | 5.6 | 8.5 | .4 | 90 | 0 | 74 | 16 | 3.5 | .3 | 9.6 | 113 |
| DEC | | | | | | | | | | | |
| 24... | 5.5 | 9.1 | .5 | 81 | 0 | 66 | 16 | 5.6 | .2 | 13 | 104 |
| JAN | | | | | | | | | | | |
| 29... | 5.8 | 8.3 | .4 | 87 | 0 | 71 | 16 | 4.8 | .2 | 13 | 112 |
| FEB | | | | | | | | | | | |
| 26... | 6.5 | 7.4 | .4 | 89 | 0 | 73 | 16 | 4.2 | .2 | 12 | 111 |
| APR | | | | | | | | | | | |
| 01... | 6.2 | 7.5 | .4 | 90 | 0 | 74 | 15 | 3.9 | .2 | 12 | 108 |
| MAY | | | | | | | | | | | |
| 03... | 5.5 | 6.3 | .3 | 82 | 0 | 67 | 14 | 3.2 | .2 | 12 | 100 |
| JUN | | | | | | | | | | | |
| 01... | 3.8 | 3.7 | .2 | 56 | 0 | 46 | 5.0 | 2.1 | .2 | 9.5 | 77 |
| 29... | 2.9 | 3.7 | .2 | 56 | 0 | 46 | 6.0 | 1.9 | .2 | 7.1 | 68 |
| AUG | | | | | | | | | | | |
| 05... | 3.1 | 2.8 | .2 | 63 | 0 | 52 | 9.3 | 1.5 | .1 | 4.4 | 107 |
| 26... | 3.9 | 3.4 | .2 | 67 | 0 | 55 | 9.7 | 1.8 | .1 | 4.6 | 84 |

## 14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L) | DIS-SOLVED SOLIDS (TONS PER AC-FT) | DIS-SOLVED SOLIDS (TONS PER DAY) | TOTAL NON-FILT-RABLE RESIDUE (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | SUS-PENDED SEDI-MENT (MG/L) | SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY) | SUS. SED. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 06... | 95 | .13 | 42200 | -- | .06 | .71 | .77 | .05 | 9 | 4080 | 87 |
| 17... | 108 | .15 | 58300 | -- | .14 | 1.2 | 1.3 | .05 | 6 | 3090 | 84 |
| DEC | | | | | | | | | | | |
| 24... | 113 | .14 | 42100 | -- | .36 | .21 | .57 | .05 | 6 | 2430 | 90 |
| JAN | | | | | | | | | | | |
| 29... | 113 | .15 | 67400 | -- | .46 | .29 | .75 | .05 | 19 | 11400 | 99 |
| FEB | | | | | | | | | | | |
| 26... | 113 | .15 | 68600 | -- | .41 | .22 | .63 | .03 | 14 | 8660 | 77 |
| APR | | | | | | | | | | | |
| 01... | 112 | .15 | 67700 | -- | .38 | .15 | .53 | .07 | 13 | 8140 | 93 |
| MAY | | | | | | | | | | | |
| 03... | 102 | .14 | 77200 | -- | .15 | .12 | .27 | .06 | 18 | 13900 | 85 |
| JUN | | | | | | | | | | | |
| 01... | 67 | .10 | 70500 | -- | .03 | .30 | .33 | .06 | 21 | 19200 | 80 |
| 29... | 63 | .09 | 52000 | -- | .00 | .20 | .20 | .04 | 10 | 7640 | 81 |
| AUG | | | | | | | | | | | |
| 05... | 70 | .15 | 74500 | 1 | .03 | .00 | .03 | .03 | 16 | 11100 | 73 |
| 26... | 74 | .11 | 44200 | 7 | .02 | .13 | .15 | .05 | 11 | 5790 | 87 |

| DATE | TIME | TOTAL ARSENIC (AS) (UG/L) | DIS-SOLVED ARSENIC (AS) (UG/L) | TOTAL CAD-MIUM (CD) (UG/L) | DIS-SOLVED CAD-MIUM (CD) (UG/L) | TOTAL CHRO-MIUM (CR) (UG/L) | DIS-SOLVED CHRO-MIUM (CR) (UG/L) | TOTAL COBALT (CO) (UG/L) | DIS-SOLVED COBALT (CO) (UG/L) | TOTAL COPPER (CU) (UG/L) | DIS-SOLVED COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | | |
| 06... | 1055 | 2 | 1 | <10 | 0 | 0 | 0 | <50 | 0 | 10 | 4 | 390 |
| JAN | | | | | | | | | | | | |
| 29... | 1100 | 2 | 1 | <10 | 1 | 0 | 0 | <50 | 0 | <10 | 2 | 850 |
| MAY | | | | | | | | | | | | |
| 03... | 1030 | 2 | 1 | <10 | 1 | 0 | 0 | <50 | 0 | 20 | 8 | 800 |
| AUG | | | | | | | | | | | | |
| 05... | 1100 | 1 | 1 | <10 | 0 | 10 | 0 | <50 | 0 | 20 | 3 | 630 |

| DATE | DIS-SOLVED IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | DIS-SOLVED LEAD (PB) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | DIS-SOLVED MAN-GANESE (MN) (UG/L) | TOTAL MERCURY (HG) (UG/L) | DIS-SOLVED MERCURY (HG) (UG/L) | TOTAL SELE-NIUM (SE) (UG/L) | DIS-SOLVED SELE-NIUM (SE) (UG/L) | TOTAL ZINC (ZN) (UG/L) | DIS-SOLVED ZINC (ZN) (UG/L) | TOTAL ORGANIC CARBON (C) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | | |
| 06... | 40 | <100 | 0 | 30 | 4 | .0 | .0 | 0 | 1 | 70 | 10 | 2.8 |
| JAN | | | | | | | | | | | | |
| 29... | 20 | <100 | 1 | 30 | 0 | .0 | .0 | 1 | 0 | 50 | 10 | -- |
| MAY | | | | | | | | | | | | |
| 03... | 70 | <100 | 2 | 20 | 0 | .0 | .0 | 0 | 0 | 30 | 20 | 5.8 |
| AUG | | | | | | | | | | | | |
| 05... | 10 | <100 | 0 | 30 | 0 | .0 | .0 | 0 | 0 | 60 | 0 | 3.9 |

## 14128910 COLUMBIA RIVER AT WARRENDALE, OREG.--CONTINUED

## BIOLOGICAL ANALYSIS, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

### PHYTOPLANKTON

| DATE | PHYLUM<br>.CLASS<br>..ORDER<br>...FAMILY<br>....GENUS<br>.....SPECIES | COMMON NAME | COUNT (CELLS/ML) | PERCENT OF TOTAL |
|---|---|---|---|---|
| NOV. 6 | CHRYSOPHYTA | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | |
| | ..CENTRALES | CENTRIC | | |
| | ...COSCINODISCACEAE | | | |
| | ....CYCLOTELLA | | 930 | 15 |
| | ....MELOSIRA | | 2500 | 40 |
| | CYANOPHYTA | BLUE-GREEN ALGAE | | |
| | .MYXOPHYCEAE | | | |
| | ..OSCILLATORIALES | FILAMETOUS | | |
| | ...OSCILLATORIACEAE | | | |
| | ....OSCILLATORIA | | 1300 | 21 |
| | TOTAL PHYTOPLANKTON | | 6200 | |
| NOV. 17 | CHLOROPHYTA | GREEN ALGAE | | |
| | .CHLOROPHYCEAE | | | |
| | ..CHLOROCOCCALES | | | |
| | ...OCCYSTACEAE | | | |
| | ....DIMORPHOCOCCUS | | 3000 | 34 |
| | CYANOPHYTA | BLUE-GREEN ALGAE | | |
| | .MYXOPHYCEAE | | | |
| | ..OSCILLATORIALES | FILAMETOUS | | |
| | ...OSCILLATORIACEAE | | | |
| | ....OSCILLATORIA | | 3400 | 39 |
| | TOTAL PHYTOPLANKTON | | 8800 | |
| DEC. 24 | CHRYSOPHYTA | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | |
| | ..CENTRALES | CENTRIC | | |
| | ...COSCINODISCACEAE | | | |
| | ....CYCLOTELLA | | 140 | 17 |
| | ....MELOSIRA | | 140 | 17 |
| | ..PENNALES | PENNATE | | |
| | ...FRAGILARIACEAE | | | |
| | ....ASTERIONELLA | | 350 | 41 |
| | TOTAL PHYTOPLANKTON | | 870 | |
| FEB. 26 | CHRYSOPHYTA | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | |
| | ..CENTRALES | CENTRIC | | |
| | ...COSCINODISCACEAE | | | |
| | ....CYCLOTELLA | | 950 | 37 |
| | ....MELOSIRA | | 570 | 22 |
| | ..PENNALES | PENNATE | | |
| | ...FRAGILARIACEAE | | | |
| | ....ASTERIONELLA | | 440 | 17 |
| | TOTAL PHYTOPLANKTON | | 2500 | |
| APR. 1 | CHRYSOPHYTA | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | |
| | ..CENTRALES | CENTRIC | | |
| | ...COSCINODISCACEAE | | | |
| | ....MELOSIRA | | 3700 | 75 |
| | TOTAL PHYTOPLANKTON | | 4900 | |
| MAY 3 | CHRYSOPHYTA | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | |
| | ..CENTRALES | CENTRIC | | |
| | ...COSCINODISCACEAE | | | |
| | ....MELOSIRA | | 9300 | 85 |
| | TOTAL PHYTOPLANKTON | | 11000 | |
| JUNE 1 | CHRYSOPHYTA | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | |
| | ..CENTRALES | CENTRIC | | |
| | ...COSCINODISCACEAE | | | |
| | ....MELOSIRA | | 5400 | 46 |
| | ..PENNALES | PENNATE | | |
| | ...FRAGILARIACEAE | | | |
| | ....ASTERIONELLA | | 3700 | 32 |
| | TOTAL PHYTOPLANKTON | | 12000 | |

## 14128910 COLUMBIA RIVER AT WARRENDALE, OREG.--CONTINUED

## BIOLOGICAL ANALYSIS, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

### PHYTOPLANKTON

| DATE | PHYLUM<br>.CLASS<br>..ORDER<br>...FAMILY<br>....GENUS<br>.....SPECIES | COMMON NAME | COUNT (CELLS/ML) | PERCENT OF TOTAL |
|---|---|---|---|---|
| JUNE 29 | CHRYSOPHYTA | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | |
| | ..CENTRALES | CENTRIC | | |
| | ...COSCINODISCACEAE | | | |
| | ....MELOSIRA | | 7400 | 57 |
| | ..PENNALES | PENNATE | | |
| | ...FRAGILARIACEAE | | | |
| | ....ASTERIONELLA | | 2500 | 19 |
| | TOTAL PHYTOPLANKTON | | 13000 | |
| AUG. 5 | CHRYSOPHYTA | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | |
| | ..CENTRALES | CENTRIC | | |
| | ...COSCINODISCACEAE | | | |
| | ....MELOSIRA | | 6000 | 40 |
| | ..PENNALES | PENNATE | | |
| | ...FRAGILARIACEAE | | | |
| | ....ASTERIONELLA | | 2700 | 18 |
| | ....FRAGILARIA | | 4900 | 32 |
| | TOTAL PHYTOPLANKTON | | 15000 | |
| AUG. 26 | CHRYSOPHYTA | | | |
| | .BACILLARIOPHYCEAE | DIATOMS | | |
| | ..CENTRALES | CENTRIC | | |
| | ...COSCINODISCACEAE | | | |
| | ....CYCLOTELLA | | 560 | 23 |
| | ....MELOSIRA | | 480 | 19 |
| | ..PENNALES | PENNATE | | |
| | ...FRAGILARIACEAE | | | |
| | ....ASTERIONELLA | | 740 | 30 |
| | CYANOPHYTA | BLUE-GREEN ALGAE | | |
| | .MYXOPHYCEAE | | | |
| | ..OSCILLATORIALES | FILAMETOUS | | |
| | ...OSCILLATORIACEAE | | | |
| | ....OSCILLATORIA | | 420 | 17 |
| | TOTAL PHYTOPLANKTON | | 2500 | |

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

### PERIPHYTON

| Date | Length of exposure (days) | Biomass ($g/m^2$) | | Chlorophyll a ($mg/m^2$) | Chlorophyll b ($mg/m^2$) | Biomass pigment ratio | Sampling method |
|---|---|---|---|---|---|---|---|
| | | Dry weight | Ash weight | | | | |
| Dec. 24 | 37 | 8.10 | 7.60 | 37.0 | .900 | --- | Polyethylene strip |

## 14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

### SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 174 | 189 | 160 | 158 | 197 | 179 | 175 | 150 | 110 | 112 | 127 | 129 |
| 2 | 176 | 188 | 155 | 158 | 198 | 183 | 170 | 151 | 109 | 111 | 126 | 130 |
| 3 | 176 | 189 | 153 | 161 | 198 | 185 | 167 | 152 | 109 | 112 | 124 | 130 |
| 4 | 176 | 191 | 156 | 158 | 197 | 180 | 167 | 156 | 109 | 112 | 125 | 130 |
| 5 | 180 | 192 | 162 | 158 | 197 | 179 | 168 | 156 | 107 | 112 | 126 | 133 |
| 6 | 180 | 194 | 161 | 161 | 197 | 177 | 166 | 157 | 108 | 114 | 127 | 133 |
| 7 | 183 | 191 | 177 | 167 | 193 | 177 | 171 | 152 | 109 | 116 | 130 | 131 |
| 8 | 183 | 195 | 185 | 166 | 189 | 177 | 168 | 151 | 110 | 117 | 128 | 131 |
| 9 | 180 | 199 | 184 | 166 | 184 | 181 | 163 | 153 | 109 | 118 | 130 | 132 |
| 10 | 183 | 205 | 179 | 166 | 182 | 183 | 163 | 156 | 111 | 119 | 131 | 132 |
| 11 | 183 | 205 | 175 | 163 | 181 | 181 | 161 | 156 | 111 | 119 | 131 | 135 |
| 12 | 183 | 208 | 171 | 164 | 180 | 179 | 158 | 154 | 110 | 119 | 132 | 131 |
| 13 | 183 | 208 | 171 | 171 | 179 | 176 | 157 | 149 | 109 | 120 | 134 | 133 |
| 14 | 183 | 208 | 170 | 172 | 178 | 175 | 161 | 142 | 110 | 122 | 131 | 135 |
| 15 | 183 | 201 | 172 | 173 | 179 | 172 | 165 | 136 | 115 | 121 | 133 | 135 |
| 16 | 183 | 196 | 175 | 175 | 174 | 170 | 172 | 132 | 116 | 122 | 132 | 133 |
| 17 | 183 | 196 | 184 | 182 | 173 | 170 | 183 | 127 | 117 | 124 | 131 | 133 |
| 18 | 183 | 202 | 185 | 185 | 173 | 171 | 191 | 125 | 118 | 125 | 132 | 133 |
| 19 | 183 | 205 | 189 | 188 | 175 | 170 | 184 | 123 | 119 | 125 | 133 | 134 |
| 20 | 170 | 205 | 192 | 190 | 173 | 169 | 169 | 119 | 121 | 126 | 133 | 135 |
| 21 | 170 | 201 | 190 | 193 | 173 | 169 | 157 | 116 | 123 | 125 | 133 | 136 |
| 22 | 171 | 197 | 187 | 196 | 173 | 170 | 150 | 114 | 123 | 124 | 134 | 135 |
| 23 | 174 | 199 | 182 | 196 | 174 | 171 | 145 | 112 | 120 | 124 | 123 | 138 |
| 24 | 181 | 188 | 174 | 198 | 177 | 171 | 145 | 115 | 116 | 124 | 123 | 137 |
| 25 | 182 | 187 | 170 | 202 | 182 | 170 | 147 | 115 | 114 | 124 | 123 | 136 |
| 26 | 181 | 182 | 160 | 207 | 184 | 171 | 146 | 112 | 111 | 124 | 123 | 138 |
| 27 | 181 | 181 | 155 | 208 | 183 | 173 | 150 | 111 | 110 | 125 | 131 | 140 |
| 28 | 183 | 180 | 154 | 207 | 180 | 172 | 149 | 112 | 111 | 123 | 133 | 142 |
| 29 | 185 | 177 | 153 | 206 | 179 | 173 | 148 | 112 | 111 | 126 | 131 | 145 |
| 30 | --- | 167 | 154 | 202 | --- | 175 | 147 | 112 | 113 | 126 | 130 | 147 |
| 31 | 190 | --- | 156 | 200 | --- | 177 | --- | 111 | --- | 125 | 130 | --- |
| MONTH | 180 | 194 | 171 | 181 | 183 | 175 | 162 | 134 | 113 | 121 | 129 | 135 |

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 18.0 | 17.5 | 13.0 | 12.0 | --- | --- | 5.0 | 4.0 | 3.5 | 3.0 | 4.0 | 3.0 |
| 2 | 18.0 | 18.0 | 13.0 | 12.0 | --- | --- | 4.0 | 4.0 | 3.5 | 3.0 | 4.0 | 3.0 |
| 3 | 18.0 | 18.0 | 13.0 | 12.0 | --- | --- | 4.0 | 4.0 | 3.5 | 3.0 | 4.0 | 3.0 |
| 4 | 18.0 | 17.5 | 13.0 | 12.0 | --- | --- | 4.0 | 4.0 | 3.5 | 2.5 | 4.0 | 3.0 |
| 5 | 18.0 | 17.0 | 13.0 | 12.0 | --- | --- | 4.0 | 4.0 | 3.0 | 2.5 | 4.0 | 3.0 |
| 6 | 18.0 | 17.5 | 13.0 | 11.5 | --- | --- | 4.5 | 4.0 | 3.0 | 2.5 | 4.0 | 3.0 |
| 7 | 17.5 | 16.5 | 12.5 | 11.5 | --- | --- | 4.5 | 4.0 | 3.0 | 2.0 | 4.0 | 3.5 |
| 8 | 17.5 | 16.0 | 14.0 | 11.5 | --- | --- | 4.5 | 4.0 | 3.0 | 2.0 | 4.0 | 3.0 |
| 9 | 17.0 | 16.0 | 14.0 | 11.0 | --- | --- | 4.5 | 4.0 | 3.0 | 2.0 | 4.0 | 3.0 |
| 10 | 17.0 | 16.0 | 11.5 | 10.5 | --- | --- | 4.5 | 4.0 | 3.0 | 2.0 | 4.0 | 3.5 |
| 11 | 17.0 | 16.0 | 11.0 | 10.5 | --- | --- | 4.5 | 4.0 | 3.0 | 2.0 | 4.0 | 3.5 |
| 12 | 17.0 | 16.0 | 11.0 | 10.5 | --- | --- | 4.5 | 4.0 | 3.0 | 2.5 | 4.0 | 3.0 |
| 13 | 17.0 | 16.0 | 10.5 | 10.0 | --- | --- | 4.5 | 4.0 | 3.0 | 2.5 | 4.0 | 3.5 |
| 14 | 16.5 | 16.0 | 10.5 | 10.0 | --- | --- | 4.5 | 4.0 | 3.0 | 2.5 | 4.0 | 3.5 |
| 15 | 16.0 | 16.0 | 10.5 | 10.0 | --- | --- | 5.0 | 4.0 | 3.0 | 2.5 | 4.0 | 3.5 |
| 16 | 16.0 | 15.5 | 10.0 | 10.0 | --- | --- | 5.0 | 4.0 | 3.5 | 2.5 | 4.5 | 3.5 |
| 17 | 16.0 | 15.5 | 10.0 | 9.0 | 6.0 | 5.5 | 5.0 | 4.5 | 3.5 | 3.0 | 4.5 | 3.5 |
| 18 | 16.0 | 15.5 | 10.0 | 8.5 | 6.0 | 5.5 | 5.0 | 4.0 | 3.5 | 3.0 | 4.5 | 4.0 |
| 19 | 16.0 | 15.5 | 9.5 | 8.5 | 6.0 | 5.0 | 5.0 | 4.0 | 3.5 | 3.0 | 4.5 | 4.0 |
| 20 | 16.0 | 15.5 | 8.5 | 8.5 | 5.5 | 5.0 | 4.5 | 4.0 | 3.5 | 3.0 | 4.5 | 4.0 |
| 21 | 16.0 | 15.0 | 8.5 | 7.5 | 5.5 | 4.5 | 4.5 | 3.5 | 3.5 | 3.0 | 4.5 | 4.0 |
| 22 | 15.0 | 15.0 | 9.0 | 7.5 | 5.0 | 4.0 | 4.5 | 3.5 | 4.0 | 3.0 | 5.0 | 4.0 |
| 23 | 15.0 | 15.0 | 9.0 | 7.5 | 4.5 | 4.0 | 4.5 | 3.5 | 4.0 | 3.5 | 5.0 | 4.0 |
| 24 | 15.0 | 15.0 | 9.0 | 7.5 | 4.5 | 4.0 | 4.5 | 3.5 | 4.0 | 3.5 | 5.0 | 4.0 |
| 25 | 14.5 | 14.5 | 9.0 | 7.5 | 4.5 | 4.0 | 4.5 | 3.5 | 4.0 | 3.5 | 5.0 | 4.0 |
| 26 | 14.0 | 14.0 | --- | --- | 5.0 | 4.5 | 4.5 | 3.5 | 4.0 | 3.5 | 5.0 | 4.5 |
| 27 | 13.5 | 13.5 | --- | --- | 5.0 | 4.5 | 4.5 | 3.5 | 4.0 | 3.5 | 5.5 | 4.5 |
| 28 | 13.0 | 13.0 | --- | --- | 5.0 | 4.5 | 4.5 | 3.5 | 4.0 | 3.5 | 5.5 | 4.5 |
| 29 | 13.0 | 13.0 | --- | --- | 5.0 | 4.5 | 4.5 | 4.0 | 4.0 | 3.0 | 5.5 | 5.0 |
| 30 | 13.0 | 13.0 | --- | --- | 5.0 | 4.5 | 4.5 | 3.5 | --- | --- | 5.5 | 5.0 |
| 31 | 13.0 | 13.0 | --- | --- | 5.0 | 4.5 | 4.0 | 3.5 | --- | --- | 6.0 | 5.0 |
| MONTH | 18.0 | 13.0 | 14.0 | 7.5 | --- | --- | 5.0 | 3.5 | 4.0 | 2.0 | 6.0 | 3.0 |

## 14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 6.5 | 5.5 | 11.0 | 10.5 | 13.0 | 12.5 | 16.0 | 16.0 | 19.5 | 19.5 | 20.0 | 19.5 |
| 2 | 6.5 | 5.5 | 11.0 | 11.0 | 13.0 | 12.5 | 16.5 | 16.0 | 19.5 | 19.5 | 19.5 | 19.5 |
| 3 | 7.0 | 5.5 | 11.5 | 11.0 | 13.0 | 13.0 | 17.0 | 16.5 | 19.5 | 19.5 | 19.5 | 19.5 |
| 4 | 7.0 | 5.5 | 11.5 | 11.0 | 13.5 | 13.0 | 17.0 | 16.5 | 19.5 | 19.5 | 19.5 | 19.5 |
| 5 | 8.0 | 6.0 | 11.5 | 11.5 | 13.5 | 13.0 | 17.5 | 17.0 | 19.5 | 19.5 | 19.5 | 19.5 |
| 6 | 8.0 | 6.0 | 12.0 | 11.5 | 13.5 | 13.0 | 17.5 | 17.5 | 19.5 | 19.5 | 19.5 | 19.0 |
| 7 | 8.0 | 6.0 | 12.0 | 11.5 | 13.5 | 13.5 | 17.5 | 17.5 | 19.5 | 19.5 | 19.0 | 19.0 |
| 8 | 8.0 | 6.0 | 12.5 | 12.0 | 13.5 | 13.5 | 18.0 | 17.5 | 19.5 | 19.0 | 19.0 | 18.5 |
| 9 | 8.0 | 6.0 | 12.5 | 12.0 | 14.0 | 13.5 | 18.0 | 17.5 | 19.0 | 19.0 | 19.0 | 18.5 |
| 10 | 8.0 | 7.0 | 13.0 | 12.5 | 14.0 | 14.0 | 18.0 | 17.5 | 19.5 | 19.0 | 19.0 | 18.5 |
| 11 | 8.5 | 7.0 | 12.5 | 12.5 | 14.0 | 14.0 | 18.0 | 17.5 | 19.5 | 19.0 | 19.5 | 19.0 |
| 12 | 8.5 | 7.0 | 13.0 | 12.0 | 14.0 | 14.0 | 18.0 | 17.5 | 19.5 | 19.0 | 19.0 | 18.5 |
| 13 | 8.5 | 7.5 | 13.0 | 13.0 | 14.0 | 14.0 | 18.0 | 18.0 | 19.5 | 19.0 | 19.0 | 18.5 |
| 14 | 8.5 | 7.5 | 13.0 | 12.5 | 14.5 | 14.0 | 18.5 | 18.0 | 19.0 | 18.5 | 18.5 | 18.5 |
| 15 | 8.5 | 7.5 | 13.0 | 12.5 | 14.5 | 14.5 | 18.5 | 18.0 | 19.0 | 19.0 | 18.5 | 18.0 |
| 16 | 9.0 | 8.0 | 13.0 | 13.0 | 14.5 | 14.5 | 19.0 | 18.5 | 19.0 | 18.5 | 18.5 | 18.5 |
| 17 | 9.0 | 8.0 | 13.0 | 13.0 | 15.0 | 14.5 | 19.0 | 19.0 | 19.0 | 19.0 | 18.5 | 18.0 |
| 18 | 9.0 | 8.0 | 13.0 | 12.5 | 15.0 | 15.0 | 19.0 | 19.0 | 19.5 | 18.5 | 18.5 | 18.0 |
| 19 | 9.0 | 8.0 | 13.0 | 13.0 | 15.5 | 15.0 | 19.0 | 19.0 | 19.5 | 19.0 | 18.5 | 18.0 |
| 20 | 9.0 | 8.0 | 13.0 | 12.5 | 15.5 | 15.5 | 19.0 | 19.0 | 19.5 | 19.0 | 18.5 | 18.0 |
| 21 | 9.0 | 8.0 | 13.0 | 12.5 | 15.5 | 15.5 | 19.0 | 19.0 | 19.5 | 19.0 | 18.5 | 18.0 |
| 22 | 9.0 | 8.0 | 13.0 | 13.0 | 15.5 | 15.5 | 19.5 | 19.0 | 19.5 | 19.0 | 18.0 | 18.0 |
| 23 | 9.0 | 8.0 | 13.0 | 12.5 | 15.5 | 15.5 | 19.5 | 19.5 | 19.5 | 19.0 | 18.0 | 17.5 |
| 24 | 9.0 | 8.0 | 13.0 | 13.0 | 15.5 | 15.5 | 20.0 | 19.5 | 19.5 | 19.0 | 18.0 | 17.5 |
| 25 | 9.0 | 8.5 | 13.0 | 13.0 | 16.5 | 15.5 | 20.0 | 19.5 | 19.0 | 19.0 | 18.0 | 17.5 |
| 26 | 9.5 | 8.5 | 13.0 | 12.5 | 16.5 | 16.0 | 20.0 | 19.5 | 19.0 | 19.0 | 18.0 | 17.5 |
| 27 | 9.5 | 8.5 | 13.0 | 13.0 | 16.5 | 16.0 | 19.5 | 19.0 | 19.0 | 18.5 | 18.0 | 17.5 |
| 28 | 10.0 | 8.5 | 13.0 | 13.0 | 16.5 | 16.5 | 19.5 | 18.0 | 19.5 | 19.0 | 18.0 | 18.0 |
| 29 | 10.0 | 9.0 | 13.0 | 12.5 | 16.5 | 16.5 | 19.0 | 18.5 | 19.5 | 19.0 | 18.5 | 18.0 |
| 30 | 10.0 | 9.0 | 13.0 | 12.5 | 16.5 | 16.0 | 19.0 | 19.0 | 19.5 | 19.0 | 18.5 | 18.0 |
| 31 | --- | --- | 13.0 | 12.5 | --- | --- | 19.5 | 19.0 | 20.0 | 19.0 | --- | --- |
| MONTH | 10.0 | 5.5 | 13.0 | 10.5 | 16.5 | 12.5 | 20.0 | 16.0 | 20.0 | 18.5 | 20.0 | 17.5 |
| YEAR | 20.0 | 2.0 | | | | | | | | | | |

## 14143500 WASHOUGAL RIVER NEAR WASHOUGAL, WA

LOCATION.--Lat 45°37'23", long 122°17'35", in SW¼SE¼ sec.27, T.2 N., R.4 E., Clark County, Hydrologic Unit 17080001, on right bank 0.6 mi (1.0 km) upstream from Cougar Creek, 4.0 mi (6.4 km) northeast of Washougal, and at mile 9.2 (14.8 km).

DRAINAGE AREA.--108 mi$^2$ (280 km$^2$).

PERIOD OF RECORD.--September 1944 to current year. Chemical analyses November 1961 to September 1970.

REVISED RECORDS.--WSP 1248: 1945-47, 1949-50, 1951(P). WSP 1738: 1948(M).

GAGE.--Water-stage recorder. Altitude of gage is 175 ft (53 m), from topographic map. Prior to Dec. 1, 1961, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good. Minor regulation by fish hatchery above station. Some small diversions for domestic use.

AVERAGE DISCHARGE.--32 years, 898 ft$^3$/s (25.43 m$^3$/s), 112.92 in/yr (2,868 mm/yr), 650,600 acre-ft/yr (802 hm$^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,600 ft$^3$/s (640 m$^3$/s) Jan. 20, 1972, gage height, 16.21 ft (4.941 m) from rating extended above 10,500 ft$^3$/s (297 m$^3$/s); minimum observed, 41 ft$^3$/s (1.16 m$^3$/s) Sept. 10, 1958; minimum gage height, 1.35 ft (0.411 m) Sept. 27, 28, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,000 ft$^3$/s (227 m$^3$/s) and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft$^3$/s) | Discharge (m$^3$/s) | Gage height (ft) | Gage height (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 1 | 2000 | *17,200 | 487 | *13.79 | 4.203 | Jan. 4 | 2200 | 9,650 | 273 | 9.97 | 3.039 |
| Dec. 4 | 0600 | 14,200 | 402 | 12.36 | 3.767 | Jan. 14 | 1400 | 9,720 | 275 | 10.01 | 3.051 |

Minimum discharge, 70 ft$^3$/s (1.98 m$^3$/s) Oct. 1, 2, gage height, 1.66 ft (0.506 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 72 | 1130 | 13800 | 1340 | 603 | 1140 | 1010 | 1080 | 626 | 206 | 100 | 109 |
| 2 | 72 | 1370 | 8520 | 1090 | 556 | 943 | 844 | 1310 | 550 | 183 | 102 | 104 |
| 3 | 141 | 1750 | 6550 | 975 | 520 | 812 | 766 | 966 | 455 | 161 | 102 | 102 |
| 4 | 274 | 1300 | 9010 | 4310 | 476 | 716 | 820 | 801 | 395 | 194 | 96 | 102 |
| 5 | 177 | 947 | 3290 | 5230 | 433 | 646 | 998 | 698 | 350 | 174 | 98 | 102 |
| 6 | 270 | 969 | 2330 | 2730 | 411 | 599 | 992 | 624 | 318 | 158 | 100 | 113 |
| 7 | 235 | 1540 | 6400 | 2770 | 392 | 577 | 1010 | 601 | 298 | 151 | 191 | 106 |
| 8 | 355 | 1440 | 4050 | 4220 | 378 | 547 | 1170 | 608 | 278 | 390 | 206 | 98 |
| 9 | 310 | 1230 | 2390 | 2900 | 363 | 568 | 1090 | 583 | 259 | 306 | 138 | 90 |
| 10 | 294 | 1070 | 1720 | 2250 | 344 | 649 | 1010 | 551 | 242 | 245 | 120 | 86 |
| 11 | 253 | 991 | 1350 | 3500 | 382 | 664 | 1200 | 515 | 245 | 225 | 109 | 88 |
| 12 | 222 | 897 | 1110 | 2450 | 1850 | 603 | 1010 | 436 | 306 | 206 | 102 | 111 |
| 13 | 203 | 770 | 985 | 1790 | 1480 | 612 | 814 | 409 | 256 | 188 | 104 | 117 |
| 14 | 197 | 1520 | 818 | 6350 | 1390 | 870 | 738 | 386 | 238 | 171 | 138 | 143 |
| 15 | 274 | 3140 | 953 | 7190 | 1510 | 864 | 939 | 342 | 238 | 161 | 249 | 138 |
| 16 | 249 | 2020 | 1100 | 4240 | 5410 | 839 | 846 | 326 | 372 | 153 | 338 | 113 |
| 17 | 239 | 1420 | 1010 | 2660 | 4760 | 1120 | 799 | 306 | 395 | 146 | 282 | 109 |
| 18 | 480 | 1060 | 903 | 1930 | 3270 | 1340 | 793 | 282 | 334 | 143 | 245 | 106 |
| 19 | 575 | 851 | 805 | 1480 | 2030 | 1270 | 739 | 282 | 298 | 136 | 206 | 98 |
| 20 | 614 | 713 | 723 | 1190 | 1510 | 1190 | 1800 | 282 | 270 | 134 | 197 | 92 |
| 21 | 668 | 629 | 658 | 996 | 1210 | 1120 | 1540 | 249 | 245 | 134 | 174 | 88 |
| 22 | 698 | 613 | 644 | 915 | 1020 | 1620 | 1140 | 238 | 232 | 124 | 156 | 96 |
| 23 | 602 | 1620 | 961 | 807 | 1190 | 1760 | 953 | 232 | 219 | 120 | 146 | 100 |
| 24 | 515 | 1610 | 3100 | 717 | 1390 | 2750 | 1310 | 256 | 216 | 115 | 134 | 96 |
| 25 | 1530 | 1310 | 2440 | 651 | 1530 | 2230 | 1240 | 282 | 200 | 113 | 148 | 94 |
| 26 | 1880 | 2830 | 4960 | 597 | 1480 | 1540 | 1020 | 235 | 188 | 111 | 177 | 92 |
| 27 | 1600 | 2350 | 2780 | 922 | 2120 | 1380 | 893 | 242 | 180 | 109 | 138 | 90 |
| 28 | 1890 | 1640 | 1850 | 967 | 2050 | 1570 | 885 | 229 | 171 | 104 | 126 | 90 |
| 29 | 1940 | 1190 | 1950 | 867 | 1450 | 1220 | 872 | 232 | 166 | 102 | 120 | 92 |
| 30 | 2320 | 6090 | 2430 | 751 | --- | 1030 | 998 | 326 | 161 | 102 | 115 | 92 |
| 31 | 1650 | --- | 1760 | 668 | --- | 1170 | --- | 475 | --- | 104 | 111 | --- |
| TOTAL | 20799 | 46010 | 91350 | 69453 | 41508 | 33959 | 30239 | 14384 | 8701 | 5069 | 4768 | 3057 |
| MEAN | 671 | 1534 | 2947 | 2240 | 1431 | 1095 | 1008 | 464 | 290 | 164 | 154 | 102 |
| MAX | 2320 | 6090 | 13800 | 7190 | 5410 | 2750 | 1800 | 1310 | 626 | 390 | 338 | 143 |
| MIN | 72 | 613 | 644 | 597 | 344 | 547 | 738 | 229 | 161 | 102 | 96 | 86 |
| CFSM | 6.21 | 14.2 | 27.3 | 20.7 | 13.3 | 10.1 | 9.33 | 4.30 | 2.69 | 1.52 | 1.43 | .94 |
| IN. | 7.16 | 15.85 | 31.46 | 23.92 | 14.30 | 11.70 | 10.42 | 4.95 | 3.00 | 1.75 | 1.64 | 1.05 |
| AC-FT | 41250 | 91260 | 181200 | 137800 | 82330 | 67360 | 59980 | 28530 | 17260 | 10050 | 9460 | 6060 |

CAL YR 1975 TOTAL 387295 MEAN 1061 MAX 13800 MIN 70 CFSM 9.82 IN 133.40 AC-FT 768200
WTR YR 1976 TOTAL 369297 MEAN 1009 MAX 13800 MIN 72 CFSM 9.34 IN 127.20 AC-FT 732500

## 14144100 WASHOUGAL RIVER AT WASHOUGAL, WA

LOCATION.--Lat 45°35'11", long 122°21'10", in SE¼NE¼ sec.7, T.1 N., R.4 E., Clark County, Hydrologic Unit 17080001, north edge of Washougal, and downstream from Little Washougal River.

PERIOD OF RECORD.--November 1975 to September 1976.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV<br>25... | 1100 | 1570 | 28 | 7.4 | 8.3 | 8 | 5 | 12.6 |
| MAR<br>17... | 1005 | 1220 | 31 | 7.5 | 7.7 | 8 | 3 | 12.3 |
| JUN<br>15... | 1020 | 264 | 30 | 7.2 | 13.8 | 21 | 6 | 11.8 |
| AUG<br>17... | 1015 | 335 | 31 | 7.5 | 13.9 | 25 | 3 | 10.8 |

| DATE | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| NOV<br>25... | B180 | B40 | 9 | 0 | 3.0 | .4 | 1.5 | 1.7 | 13 |
| MAR<br>17... | B180 | B10 | 8 | 0 | 2.2 | .6 | 1.8 | .4 | 14 |
| JUN<br>15... | 220 | B4 | 9 | 0 | 2.6 | .7 | 1.8 | .3 | 14 |
| AUG<br>17... | >480 | 68 | 12 | 0 | 3.0 | 1.0 | 2.0 | .3 | 18 |

| DATE | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV<br>25... | 11 | .8 | 1.1 | 1.0 | .13 | .05 | .01 | .00 |
| MAR<br>17... | 11 | .7 | 3.3 | 1.3 | .12 | .05 | .01 | .00 |
| JUN<br>15... | 11 | 1.4 | 1.1 | 1.2 | .04 | .05 | .01 | .00 |
| AUG<br>17... | 15 | .9 | 1.4 | 1.2 | .21 | .05 | .02 | .00 |

B Results based upon colony counts outside the ideal range.

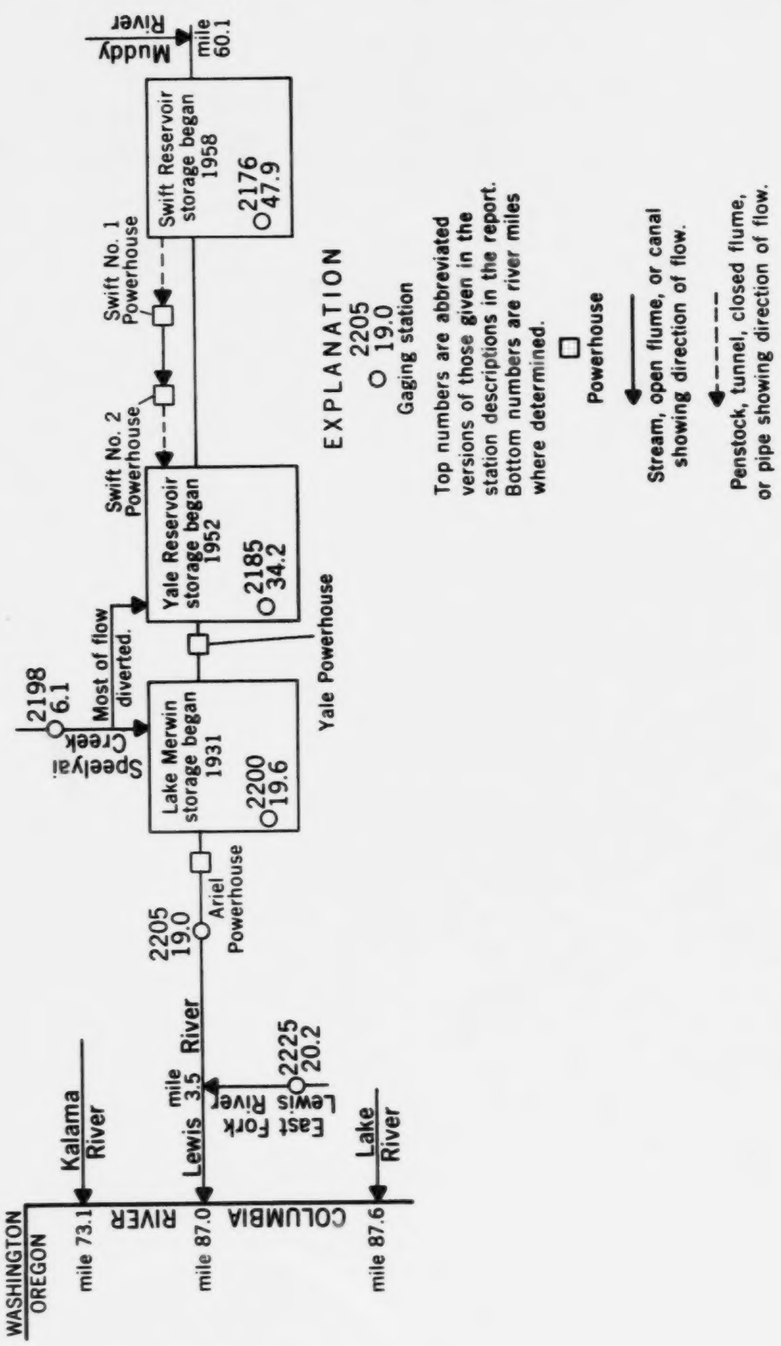
WASHINGTON
OREGON
COLUMBIA RIVER
mile 73.1
mile 87.0
mile 87.6
Kalama River
Lewis River
Lake River
mile 3.5
East Fork Lewis River
2225
20.2
2205
19.0
Ariel Powerhouse
Lake Merwin storage began 1931
2200
19.6
Speelyai Creek
2198
6.1
Most of flow diverted.
Yale Powerhouse
Yale Reservoir storage began 1952
2185
34.2
Swift No. 2 Powerhouse
Swift No. 1 Powerhouse
Swift Reservoir storage began 1958
2176
47.9
Muddy River
mile 60.1
EXPLANATION
2205
19.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 19. Gaging stations in Lewis River basin.

## 14219800 SPEELYAI CREEK NEAR COUGAR, WA

**LOCATION.**--Lat 46°00'28", long 122°20'46", in NW¼NW¼ sec.17, T.6 N., R.4 E., Cowlitz County, Hydrologic Unit 17080002, on right bank 3.8 mi (6.1 km) southwest of Cougar and at mile 6.1 (9.8 km).

**DRAINAGE AREA.**--12.6 $mi^2$ (32.6 $km^2$).

**PERIOD OF RECORD.**--May 1959 to current year.

**REVISED RECORDS.**--WSP 1718: 1959.

**GAGE.**--Water-stage recorder. Altitude of gage is 500 ft (152 m), from topographic map. Prior to Nov. 21, 1959, at site 250 ft (76 m) downstream at different datum.

**REMARKS.**--Records good except those for period of no gage-height record, Aug. 26 to Sept. 28, which are fair. No regulation or diversion above station. Greater part of flow diverted into Yale Reservoir Reservoir (see sta 14218500), 240 ft (73 m) downstream from station.

**AVERAGE DISCHARGE.**--17 years, 111 $ft^3/s$ (3.144 $m^3/s$), 119.63 in/yr (3,039 mm/yr), 80,420 acre-ft/yr (99.2 $hm^3/yr$).

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 3,600 $ft^3/s$ (102 $m^3/s$) probably Nov. 20, 1962 (by slope-area measurement, gage height not determined); minimum observed, 1.8 $ft^3/s$ (0.051 $m^3/s$) Sept. 24-29, 1967, gage height, 0.24 ft (0.073 m).

**EXTREMES FOR CURRENT YEAR.**--Peak discharges above base of 700 $ft^3/s$ (19.8 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 30 | 0600 | 860 | 24.4 | 4.70 | 1.433 | Dec. 26 | 0600 | 1,380 | 39.1 | 5.16 | 1.573 |
| Dec. 1 | 2000 | *2,490 | 70.5 | *6.55 | 1.996 | Jan. 15 | 1200 | 1,310 | 37.1 | 5.07 | 1.545 |
| Dec. 4 | 0300 | 2,260 | 64.0 | 6.26 | 1.908 | Feb. 16 | 0700 | 745 | 21.1 | 4.35 | 1.326 |

Minimum discharge, 6.2 $ft^3/s$ (0.18 $m^3/s$) Oct. 1, 2; minimum gage height, 1.79 ft (0.546 m) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.5 | 229 | 1610 | 148 | 86 | 109 | 100 | 220 | 72 | 28 | 15 | 12 |
| 2 | 6.3 | 260 | 1310 | 116 | 81 | 92 | 86 | 272 | 62 | 25 | 15 | 11 |
| 3 | 15 | 310 | 1540 | 107 | 77 | 80 | 82 | 190 | 53 | 24 | 15 | 10 |
| 4 | 32 | 229 | 1390 | 427 | 71 | 73 | 91 | 145 | 46 | 25 | 15 | 10 |
| 5 | 21 | 170 | 460 | 472 | 66 | 66 | 109 | 120 | 42 | 24 | 15 | 10 |
| 6 | 25 | 175 | 281 | 264 | 62 | 60 | 114 | 109 | 39 | 23 | 17 | 11 |
| 7 | 19 | 215 | 443 | 249 | 60 | 54 | 125 | 111 | 37 | 25 | 24 | 10 |
| 8 | 19 | 199 | 405 | 370 | 58 | 50 | 156 | 114 | 35 | 77 | 22 | 9.0 |
| 9 | 24 | 172 | 264 | 293 | 55 | 50 | 153 | 109 | 33 | 47 | 19 | 8.5 |
| 10 | 25 | 145 | 181 | 257 | 53 | 54 | 148 | 109 | 32 | 39 | 17 | 8.0 |
| 11 | 24 | 127 | 133 | 346 | 60 | 53 | 196 | 96 | 35 | 34 | 16 | 8.0 |
| 12 | 21 | 110 | 107 | 241 | 206 | 51 | 158 | 77 | 40 | 30 | 15 | 9.0 |
| 13 | 18 | 100 | 91 | 178 | 193 | 53 | 125 | 72 | 36 | 27 | 16 | 10 |
| 14 | 17 | 280 | 80 | 815 | 187 | 60 | 114 | 68 | 33 | 25 | 20 | 12 |
| 15 | 22 | 507 | 78 | 1150 | 184 | 61 | 109 | 58 | 35 | 24 | 28 | 13 |
| 16 | 21 | 300 | 76 | 668 | 616 | 70 | 94 | 55 | 58 | 23 | 36 | 11 |
| 17 | 28 | 205 | 73 | 390 | 544 | 100 | 89 | 52 | 50 | 22 | 33 | 10 |
| 18 | 50 | 152 | 72 | 268 | 410 | 175 | 85 | 46 | 45 | 21 | 30 | 9.0 |
| 19 | 64 | 123 | 71 | 193 | 257 | 158 | 88 | 43 | 40 | 20 | 26 | 8.5 |
| 20 | 63 | 100 | 69 | 145 | 175 | 136 | 161 | 40 | 36 | 19 | 26 | 8.0 |
| 21 | 73 | 87 | 66 | 118 | 136 | 116 | 143 | 37 | 34 | 19 | 24 | 8.0 |
| 22 | 67 | 87 | 66 | 111 | 113 | 184 | 118 | 36 | 32 | 18 | 22 | 8.0 |
| 23 | 59 | 212 | 114 | 102 | 122 | 187 | 111 | 34 | 30 | 18 | 20 | 8.0 |
| 24 | 51 | 215 | 421 | 91 | 150 | 332 | 181 | 46 | 28 | 17 | 19 | 7.5 |
| 25 | 193 | 187 | 328 | 82 | 161 | 281 | 158 | 48 | 28 | 17 | 22 | 7.0 |
| 26 | 244 | 290 | 994 | 76 | 148 | 190 | 131 | 41 | 26 | 16 | 20 | 7.0 |
| 27 | 330 | 252 | 449 | 111 | 175 | 156 | 122 | 41 | 26 | 16 | 18 | 6.5 |
| 28 | 428 | 190 | 272 | 116 | 169 | 150 | 120 | 37 | 25 | 16 | 16 | 7.0 |
| 29 | 563 | 148 | 268 | 114 | 136 | 129 | 129 | 40 | 25 | 16 | 15 | 6.9 |
| 30 | 717 | 386 | 272 | 102 | --- | 118 | 175 | 46 | 25 | 16 | 14 | 6.6 |
| 31 | 370 | --- | 196 | 92 | --- | 120 | --- | 70 | --- | 16 | 13 | --- |
| TOTAL | 3615.8 | 6162 | 12180 | 8212 | 4811 | 3568 | 3771 | 2582 | 1138 | 767 | 623 | 270.5 |
| MEAN | 117 | 205 | 393 | 265 | 166 | 115 | 126 | 83.3 | 37.9 | 24.7 | 20.1 | 9.02 |
| MAX | 717 | 507 | 1610 | 1150 | 616 | 332 | 196 | 272 | 72 | 77 | 36 | 13 |
| MIN | 6.3 | 87 | 66 | 76 | 53 | 50 | 82 | 34 | 25 | 16 | 13 | 6.5 |
| CFSM | 9.29 | 16.3 | 31.2 | 21.0 | 13.2 | 9.13 | 10.0 | 6.61 | 3.01 | 1.96 | 1.60 | .72 |
| IN. | 10.67 | 18.19 | 35.96 | 24.24 | 14.20 | 10.53 | 11.13 | 7.62 | 3.36 | 2.26 | 1.84 | .80 |
| AC-FT | 7170 | 12220 | 24160 | 16290 | 9540 | 7080 | 7480 | 5120 | 2260 | 1520 | 1240 | 537 |

CAL YR 1975 TOTAL 48148.2 MEAN 132 MAX 1610 MIN 5.0 CFSM 10.5 IN 142.14 AC-FT 95500
WTR YR 1976 TOTAL 47700.3 MEAN 130 MAX 1610 MIN 6.3 CFSM 10.3 IN 140.82 AC-FT 94610

## RESERVOIRS IN LEWIS RIVER BASIN, WA

14217600 SWIFT RESERVOIR.--Lat 46°03'38", long 122°11'44", in NE¼SW¼ sec.28, T.7 N., R.5 E., Skamania County, Hydrologic Unit 17080002, at the intake structure near left bank on Swift Dam on Lewis River 5.0 mi (8.0 km) east of Cougar and at mile 47.9 (77.1 km). DRAINAGE AREA, 481 $mi^2$ (1,246 $km^2$). PERIOD OF RECORD, September September 1958 to current year. GAGE, water-stage recorder and long distance indicator in powerhouse. Datum of gage is at mean sea level (levels by Pacific & Power Light Co.).

Reservoir is formed by rock and earthfill dam; storage began Sept. 29, 1958; dam completed in December 1958. Usable capacity, 446,550 acre-ft (551 $hm^3$) between elevations 878 ft (267.6 m), lower limit for economic operation, and 1,000.5 ft (304.95 m), maximum operating limit. Dead storage unknown. Figures given herein represent total contents. Water is used by Pacific Power & Light Co. for power development. Capacity table furnished by Pacific Power & Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 759,100 acre-ft (936 $hm^3$) Nov. 15, 1973, elevation, 1,000.77 ft (305.035 m); minimum since reservoir was first filled, 325,100 acre-ft (401 $hm^3$) May 1, 1967, elevation, 883.60 ft (269.321 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 755,212 acre-ft (931 $hm^3$) Aug. 9, elevation, 999.92 ft (304.776 m); minimum, 372,120 acre-ft (459 $hm^3$) Apr. 2, elevation,899.40 ft (274.137 m).

14218500 YALE RESERVOIR. Lat 45°57'50", long 122°19'53", in SE¼NE¼ sec.32, T.6 N., R.4 E., Clark County, Hydrologic Unit 17080002, at left end of Yale Dam on Lewis River just upstream from intake, 500 ft (152 m) upstream from powerhouse, 1.0 mi (1.6 km) upstream from Canyon Creek, 3.2 mi (5.1 km) southeast of Yale, and at mile 34.2 (55.0 km). DRAINAGE AREA, 596 $mi^2$ (1,544 $km^2$). PERIOD OF RECORD, August 1952 to current year. Chemical analyses February 1969 to June 1971, water temperature June 1969 to June 1971, and sediment records February 1970 to September 1971. GAGE, water-stage recorder and and long distance indicator in powerhouse. Datum of gage is at mean sea level (levels by Pacific Power & Light Co.). Prior to Feb. 1, 1954, nonrecording indicator gage at same site and datum.

Reservoir is formed by rock and earthfill dam; storage began July 31, 1952, dam completed in 1952. Usable capacity, 189,530 acre-ft (234 $hm^3$) between elevations 430 ft (131.1 m), lower limit for economic operation, and 490 ft (149.4 m), top of spillway gates. Dead storage below elevation 417 ft (127.1 m), 178,050 acre-ft (220 $hm^3$). Figures given herein represent total contents. Water is used by Pacific Power & Light Co. for power development. Water-stage recorder graph and capacity table furnished by Pacific Power & Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 402,500 acre-ft (496 $hm^3$) May 13, 1961, elevation, 490.15 ft (149.398 m); minimum observed since reservoir was first filled, 227,600 acre-ft (281 $hm^3$) Feb. 22, 1957, elevation, 435.65 ft (132.786 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 401,629 acre-ft (495 $hm^3$) Aug. 21, elevation, 489.96 ft (149.340 m); minimum, 313,785 acre-ft (387 $hm^3$) Oct. 7, elevation, 464.75 ft (141.656 m).

14220000 LAKE MERWIN.--Lat 45°57'23", long 122°33'13", in SW¼SW¼ sec.34, T.6 N., R.2 E., Clark County, Hydrologic Unit 17080002, on left end of dam on Lewis River at Ariel and at mile 19.6 (31.5 km). DRAINAGE AREA, 730 $mi^2$ (1,890 $km^2$). PERIOD OF RECORD.--March 1931 to current year. Water-stage recorder and long distance indicator in powerhouse. Datum of gage is at mean sea level (levels by Pacific Power & Light Co.).

Reservoir if formed by combination gravity-concrete-arch dam; some storage began March 1931; completed May 13, 1931. Usable capacity 246,000 acre-ft (303 $hm^3$) between elevations 165 ft (50.3 m), lower limit of regulation set by Federal Power Commission, and 235 ft (71.6 m) top of spillway gates. Additional storage of 18,200 acre-ft (22.4 $hm^3$) is provided by flashboards, elevation, 239.6 ft (73.03 m). Unused storage, below elevation 165 ft (50.3 m), 159,000 acre-ft (196 $hm^3$). Figures given herein represent total contents. Water is used by Pacific Power & Light Co. for power development. Capacity table furnished by Pacific Power & Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents during the period 1931-52 not determined; maximum during period 1953-76, 424,000 acre-ft (523 $hm^3$) Jan. 24, 1959, elevation, 239.86 ft (73.109 m); minimum observed since reservoir was first filled, 164,200 acre-ft (202 $hm^3$) Dec. 5, 1936, elevation, 166.7 ft (50.81 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 422,245 acre-ft (521 $hm^3$) July 23, elevation, 239.46 ft (72.987 m); minimum, 382,975 acre-ft (472 $hm^3$) Apr. 13, elevation, 229.41 ft (69.924 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|---|---|---|---|---|---|
| | 14217600 SWIFT RESERVOIR | | | 14218500 YALE RESERVOIR | | | 14220000 LAKE MERWIN | | |
| Sept. 30.... | 994.64 | 731,310 | - | 473.22 | 341,546 | - | 236.28 | 409,633 | |
| Oct. 31.... | 991.86 | 718,800 | -12,510 | 471.07 | 334,334 | -7,212 | 236.03 | 408,647 | -986 |
| Nov. 30.... | 977.22 | 655,254 | -63,546 | 483.00 | 375,830 | +41,496 | 237.97 | 416,320 | +7,673 |
| Dec. 31.... | 985.47 | 690,498 | +35,244 | 486.72 | 389,484 | +13,654 | 233.78 | 399,829 | -16,491 |
| CAL YR 1975 | - | - | +4,304 | - | - | +21,149 | - | - | +1,362 |
| Jan. 31.... | 980.40 | 668,650 | -21,848 | 486.02 | 386,894 | -2,590 | 232.78 | 395,943 | -3,886 |
| Feb. 29.... | 950.30 | 547,270 | -121,380 | 476.78 | 353,749 | -33,145 | 236.88 | 412,003 | +16,060 |
| Mar. 31.... | 900.62 | 375,902 | -171,368 | 475.50 | 349,330 | -4,419 | 236.92 | 412,161 | +158 |
| Apr. 30.... | 936.65 | 496,870 | +120,968 | 480.40 | 366,484 | +17,154 | 234.17 | 401,351 | -10,810 |
| May 31.... | 989.83 | 709,682 | +212,812 | 488.52 | 396,210 | +29,726 | 236.27 | 409,594 | +8,243 |
| June 30.... | 997.59 | 744,585 | +34,903 | 487.20 | 391,268 | -4,942 | 237.21 | 413,309 | +3,715 |
| July 31.... | 998.59 | 749,114 | +4,529 | 489.68 | 400,574 | +9,306 | 239.04 | 420,573 | +7,264 |
| Aug. 31.... | 999.16 | 751,716 | +2,602 | 489.70 | 400,649 | +75 | 239.28 | 421,528 | +955 |
| Sept. 30.... | 996.77 | 740,895 | -10,821 | 479.40 | 362,936 | -37,713 | 236.02 | 408,608 | -12,920 |
| WTR YR 1976 | - | - | +9,585 | - | - | +21,390 | - | - | -1,025 |

## 14220500 LEWIS RIVER AT ARIEL, WA

**LOCATION.**--Lat 45°57'07", long 122°33'46", in NW¼NE¼ sec.4, T.5 N., R.2 E., Cowlitz County, Hydrologic Unit 17080002, on right bank 0.4 mi (0.6 km) southeast of Ariel, 0.5 mi (0.8 km) downstream from Ariel Dam and powerplant, 3.3 mi (5.3 km) upstream from Cedar Creek, and at mile 19.0 (30.6 km).

**DRAINAGE AREA.**--731 mi² (1,893 km²).

**PERIOD OF RECORD.**--July to October 1909, November 1909 (gage heights only), July to October 1922, July 1923 to current year. Published as "near Ariel" 1922-29. Prior to October 1952, discharge measurements made at site 0.5 mi (0.8 km) downstream; low discharges not equivalent due to local inflow. Chemical analyses July 1959 to June 1960, water temperature October 1950 to September 1963.

**REVISED RECORDS.**--WSP 884: 1938. WSP 984: 1936-37, 1940-42. WSP 1318: 1924-30(M).

**GAGE.**--Water-stage recorder. Datum of gage is 44.0 ft (13.41 m) above mean sea level, unadjusted (levels by Pacific Power and Light Co.) July to November 1909, nonrecording gage at site 4 mi (6.4 km) upstream at different datum. July 27 to Oct. 28, 1922, and July 31, 1923, to Apr. 20, 1930, nonrecording gages at site 0.5 mi (0.8 km) downstream at datums 3.90 ft (1.189 m) and 0.90 ft (0.274 m) higher, respectively, than present datum.

**REMARKS.**--Records excellent. No diversion above station. Flow regulated by Lake Merwin and Yale and Swift Reservoirs (see preceding page).

**AVERAGE DISCHARGE.**--53 years (water years 1924-76), 4,918 ft³/s (139 m³/s), 91.36 in/yr (2,321 mm/yr) 3,563,000 acre-ft/yr (4,390 hm³/yr), adjusted for storage in Lake Merwin Reservoir since March 1931, Yale Reservoir since August 1952, and Swift Reservoir since October 1958.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 129,000 ft³/s (3,650 m³/s) Dec. 22, 1933, gage height, 35.0 ft (10.67 m), from floodmarks, from rating curve extended above 56,000 ft³/s (1,590 m³/s) on basis of computation of peak flow over dam; no flow at times June 30, July 1-3, 6-9, 1931 (caused by regulation during construction of Ariel Dam); minimum daily, 1 ft³/s (0.028 m³/s) July 6, 1931.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 64,500 ft³/s (1,830 m³/s) Dec. 4, gage height, 22.63 ft (6.898 m); minimum, 578 ft³/s (16.4 m³/s) June 14, gage height, 0.43 ft (0.131 m); minimum daily discharge, 668 ft³/s (18.9 m³/s) July 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6120 | 8420 | 24000 | 9150 | 8420 | 11100 | 10300 | 2890 | 2830 | 2340 | 841 | 2010 |
| 2 | 6100 | 1740 | 36700 | 9130 | 9100 | 11400 | 6290 | 2900 | 2820 | 2860 | 994 | 2200 |
| 3 | 3130 | 7260 | 35100 | 9830 | 9190 | 8860 | 1890 | 2920 | 2820 | 2880 | 1530 | 2230 |
| 4 | 2940 | 8240 | 57200 | 11600 | 9810 | 9590 | 2790 | 2920 | 2840 | 2880 | 1660 | 1150 |
| 5 | 3890 | 8380 | 33000 | 11700 | 10700 | 9060 | 6100 | 2940 | 2880 | 2190 | 680 | 1170 |
| 6 | 4610 | 9370 | 17100 | 11700 | 9740 | 8520 | 5800 | 3040 | 2900 | 2200 | 680 | 708 |
| 7 | 2160 | 10000 | 23800 | 11700 | 7680 | 5270 | 2900 | 3380 | 2900 | 2880 | 1750 | 694 |
| 8 | 2090 | 10400 | 25400 | 11700 | 8020 | 7940 | 3700 | 3020 | 2880 | 2880 | 3040 | 701 |
| 9 | 1920 | 9810 | 18300 | 11600 | 8180 | 6960 | 3720 | 3000 | 2890 | 2200 | 962 | 694 |
| 10 | 1980 | 10300 | 13100 | 11600 | 8200 | 5690 | 2800 | 2960 | 2900 | 3410 | 2140 | 708 |
| 11 | 4030 | 10400 | 11000 | 11600 | 6190 | 8460 | 2020 | 2990 | 2890 | 4100 | 2090 | 729 |
| 12 | 4710 | 10500 | 9720 | 11600 | 4210 | 9410 | 2780 | 2960 | 2840 | 3040 | 1210 | 715 |
| 13 | 3850 | 4340 | 8780 | 9810 | 7060 | 6070 | 1830 | 2950 | 2850 | 2720 | 2030 | 715 |
| 14 | 3520 | 4420 | 8480 | 10800 | 8260 | 3440 | 2180 | 2880 | 2780 | 2400 | 1360 | 3600 |
| 15 | 2500 | 8060 | 8600 | 18300 | 8860 | 7160 | 2910 | 2910 | 2910 | 2260 | 2100 | 2720 |
| 16 | 835 | 8080 | 6500 | 19400 | 9760 | 5980 | 2880 | 2940 | 2910 | 2830 | 2140 | 2320 |
| 17 | 1090 | 9100 | 7260 | 15300 | 8360 | 6700 | 2880 | 2910 | 2910 | 778 | 1110 | 1510 |
| 18 | 1030 | 10100 | 8930 | 12700 | 11100 | 7660 | 2850 | 2910 | 2950 | 806 | 729 | 2860 |
| 19 | 842 | 10300 | 9260 | 11600 | 11100 | 6880 | 2890 | 2860 | 2940 | 834 | 2170 | 5260 |
| 20 | 849 | 10300 | 9760 | 10700 | 9740 | 5900 | 2910 | 2890 | 2900 | 1920 | 841 | 5220 |
| 21 | 1880 | 10400 | 9150 | 9480 | 10100 | 3340 | 2920 | 2900 | 3930 | 1260 | 2360 | 2840 |
| 22 | 4400 | 10400 | 8680 | 8970 | 3370 | 7600 | 2910 | 2880 | 4930 | 687 | 1030 | 1610 |
| 23 | 6170 | 9940 | 9320 | 8880 | 7700 | 7940 | 2890 | 2830 | 5040 | 1070 | 1720 | 1390 |
| 24 | 7580 | 9370 | 10100 | 8560 | 8990 | 8320 | 2890 | 2880 | 5030 | 680 | 1440 | 1410 |
| 25 | 6820 | 9320 | 9080 | 8380 | 8420 | 8760 | 2910 | 2840 | 3760 | 668 | 883 | 1470 |
| 26 | 6190 | 9210 | 11300 | 8400 | 8720 | 7960 | 2890 | 2820 | 2990 | 701 | 2370 | 3970 |
| 27 | 3590 | 5790 | 11800 | 8140 | 8520 | 8340 | 2850 | 2840 | 3100 | 715 | 1310 | 3650 |
| 28 | 1500 | 9280 | 11800 | 7660 | 7800 | 6710 | 2940 | 2760 | 4880 | 687 | 694 | 2860 |
| 29 | 6390 | 9390 | 10600 | 9150 | 8360 | 6140 | 2890 | 2770 | 3690 | 1800 | 701 | 2860 |
| 30 | 8140 | 10600 | 9520 | 7340 | --- | 5420 | 2860 | 2840 | 4950 | 1800 | 694 | 2890 |
| 31 | 7680 | --- | 9280 | 9210 | --- | 8020 | --- | 2830 | --- | 1320 | 1300 | --- |
| TOTAL | 118536 | 263220 | 482620 | 335690 | 245660 | 230600 | 101370 | 90360 | 99840 | 59796 | 44559 | 62864 |
| MEAN | 3824 | 8774 | 15570 | 10830 | 8471 | 7439 | 3379 | 2915 | 3328 | 1929 | 1437 | 2095 |
| MAX | 8140 | 10600 | 57200 | 19400 | 11100 | 11400 | 10300 | 3380 | 5040 | 4100 | 3040 | 5260 |
| MIN | 835 | 1740 | 6500 | 7340 | 3370 | 3340 | 1830 | 2760 | 2780 | 668 | 680 | 694 |
| AC-FT | 235100 | 522100 | 957300 | 665800 | 487300 | 457400 | 201100 | 179200 | 198000 | 118660 | 88380 | 124700 |
| † | -20,708 | -14,377 | +32,407 | -28,324 | -138,465 | -175,629 | +127,312 | +250,781 | +33,676 | +21,099 | +3,632 | -61,454 |
| MEAN‡ | 3,486 | 8,534 | 16,090 | 10,370 | 6,062 | 4,582 | 5,520 | 6,992 | 3,895 | 2,272 | 1,496 | 1,063 |
| CFSM‡ | 4.77 | 11.7 | 22.0 | 14.2 | 8.29 | 6.27 | 7.55 | 9.56 | 5.33 | 3.11 | 2.05 | 1.45 |
| IN.‡ | 5.50 | 13.02 | 25.39 | 16.35 | 8.95 | 7.23 | 8.42 | 11.03 | 5.94 | 3.58 | 2.36 | 1.62 |
| AC-FT‡ | 214,400 | 507,700 | 989,700 | 637,500 | 348,800 | 281,800 | 328,400 | 430,000 | 231,700 | 139,700 | 92,010 | 63,250 |

CAL YR 1975: TOTAL 2,197,599 MEAN 6,021 MAX 57,200 MIN 706 AC-FT 4,359,000
DO.....: MEAN‡ 6,057 CFSM‡ 8.29 IN.‡ 112.50 AC-FT‡ 4,386,000
WTR YR 1976: TOTAL 2,135,115 MEAN 5,834 MAX 57,200 MIN 668 AC-FT 4,235,000
DO.....: MEAN‡ 5,877 CFSM‡ 8.04 IN.‡ 109.40 AC-FT‡ 4,265,000

† Change in contents, Lake Merwin, and Swift and Yale Reservoirs.
‡ Adjusted for change in contents.

## 14222500 EAST FORK LEWIS RIVER NEAR HEISSON, WA

**LOCATION.**--Lat 45°50'13", long 122°27'54", in NE¼NW¼ sec.17, T.4 N., R.3 E., Clark County, Hydrologic Unit 17080002, on right bank 60 ft (18 m) downstream from Basket Creek, 1.5 mi (2.4 km) northeast of Heisson, 3.4 mi (5.5 km) southwest of Yacolt, and at mile 20.2 (32.5 km).

**DRAINAGE AREA.**--125 mi² (324 km²).

**PERIOD OF RECORD.**--September 1929 to current year. Water temperatures June 1950 to August 1972.

**GAGE.**--Water-stage recorder. Datum of gage is 366.8 ft (111.80 m) above mean sea level (from river-profile survey).

**REMARKS.**--Records good. No regulation or diversion above station.

**AVERAGE DISCHARGE.**--47 years, 767 ft³/s (21.72 m³/s), 83.33 in/yr (2,117 mm/yr), 555,700 acre-ft/yr (685 hm³/yr).

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 19,200 ft³/s (544 m³/s) Jan. 20, 1972, gage height, 12.92 ft (3.938 m); minimum, 29 ft³/s (0.82 m³/s) Nov. 3, 1935, Sept. 27, 28, 1967; minimum gage height, 0.04 ft (0.012 m) Nov. 3, 1935.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges above base of 6,100 ft³/s (173 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 1 | 2000 | 10,500 | 297 | 10.00 | 3.048 | Dec. 7 | 1500 | 7,210 | 204 | 8.53 | 2.600 |
| Dec. 4 | 0600 | *11,700 | 331 | *10.47 | 3.191 | | | | | | |

Minimum discharge, 56 ft³/s (1.59 m³/s) Oct. 1, gage height, 0.39 ft (0.119 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 58 | 1270 | 7960 | 1400 | 574 | 1180 | 926 | 1200 | 512 | 224 | 89 | 89 |
| 2 | 59 | 1260 | 6360 | 1150 | 530 | 972 | 806 | 1500 | 488 | 187 | 90 | 88 |
| 3 | 121 | 1390 | 5110 | 1050 | 495 | 828 | 735 | 1080 | 420 | 165 | 91 | 86 |
| 4 | 194 | 1040 | 8310 | 2730 | 454 | 726 | 743 | 882 | 378 | 189 | 86 | 86 |
| 5 | 123 | 910 | 3750 | 3330 | 408 | 641 | 858 | 766 | 344 | 170 | 87 | 86 |
| 6 | 216 | 1020 | 2630 | 2440 | 384 | 585 | 878 | 679 | 322 | 151 | 90 | 106 |
| 7 | 136 | 1260 | 5930 | 2530 | 370 | 551 | 898 | 661 | 307 | 148 | 202 | 95 |
| 8 | 195 | 1290 | 4260 | 3250 | 359 | 512 | 1110 | 703 | 245 | 359 | 210 | 87 |
| 9 | 189 | 1170 | 2630 | 2540 | 346 | 506 | 1040 | 691 | 278 | 244 | 137 | 80 |
| 10 | 188 | 1060 | 1930 | 2080 | 328 | 545 | 947 | 659 | 266 | 213 | 114 | 74 |
| 11 | 165 | 908 | 1460 | 2580 | 349 | 533 | 1150 | 612 | 273 | 205 | 101 | 76 |
| 12 | 143 | 806 | 1170 | 2170 | 843 | 491 | 966 | 506 | 322 | 191 | 96 | 82 |
| 13 | 137 | 744 | 1020 | 1700 | 784 | 510 | 781 | 485 | 279 | 176 | 95 | 86 |
| 14 | 140 | 1340 | 840 | 4350 | 831 | 704 | 706 | 458 | 253 | 161 | 119 | 127 |
| 15 | 198 | 2770 | 953 | 5660 | 915 | 673 | 802 | 404 | 249 | 149 | 239 | 140 |
| 16 | 179 | 1830 | 1020 | 3960 | 2760 | 673 | 709 | 389 | 367 | 139 | 274 | 98 |
| 17 | 173 | 1360 | 944 | 2680 | 3030 | 876 | 686 | 373 | 382 | 133 | 246 | 93 |
| 18 | 420 | 1060 | 863 | 1990 | 2640 | 1100 | 670 | 334 | 328 | 131 | 223 | 92 |
| 19 | 452 | 890 | 784 | 1530 | 1900 | 1050 | 639 | 333 | 299 | 121 | 179 | 86 |
| 20 | 473 | 744 | 713 | 1220 | 1470 | 1030 | 1600 | 334 | 275 | 118 | 172 | 80 |
| 21 | 562 | 677 | 646 | 1010 | 1190 | 968 | 1430 | 299 | 253 | 118 | 152 | 76 |
| 22 | 601 | 651 | 661 | 935 | 1020 | 1290 | 1080 | 289 | 238 | 110 | 134 | 82 |
| 23 | 518 | 1060 | 1020 | 821 | 1090 | 1380 | 924 | 283 | 226 | 105 | 124 | 82 |
| 24 | 433 | 1110 | 2260 | 716 | 1140 | 2240 | 1130 | 305 | 233 | 101 | 116 | 77 |
| 25 | 902 | 1020 | 2020 | 642 | 1330 | 1960 | 1050 | 314 | 212 | 99 | 140 | 74 |
| 26 | 1260 | 1960 | 3260 | 588 | 1380 | 1540 | 924 | 272 | 197 | 97 | 132 | 69 |
| 27 | 1300 | 2010 | 2410 | 875 | 2100 | 1350 | 836 | 302 | 182 | 95 | 112 | 67 |
| 28 | 1610 | 1490 | 1820 | 872 | 2000 | 1330 | 834 | 277 | 172 | 92 | 103 | 68 |
| 29 | 1890 | 1140 | 1950 | 796 | 1500 | 1130 | 874 | 285 | 166 | 90 | 98 | 70 |
| 30 | 2580 | 3630 | 2260 | 702 | --- | 1020 | 1050 | 394 | 163 | 92 | 94 | 69 |
| 31 | 1870 | --- | 1790 | 628 | --- | 1070 | --- | 479 | --- | 92 | 91 | --- |
| TOTAL | 17485 | 38940 | 78694 | 58925 | 32520 | 29944 | 27762 | 16548 | 8694 | 4665 | 4234 | 2571 |
| MEAN | 564 | 1298 | 2539 | 1901 | 1121 | 966 | 925 | 534 | 290 | 150 | 137 | 85.7 |
| MAX | 2580 | 3630 | 8310 | 5660 | 3030 | 2240 | 1600 | 1500 | 512 | 359 | 274 | 140 |
| MIN | 58 | 651 | 646 | 588 | 328 | 491 | 639 | 272 | 163 | 90 | 86 | 67 |
| CFSM | 4.51 | 10.4 | 20.3 | 15.2 | 8.97 | 7.73 | 7.40 | 4.27 | 2.32 | 1.20 | 1.10 | .69 |
| IN. | 5.20 | 11.59 | 23.42 | 17.54 | 9.68 | 8.91 | 8.26 | 4.92 | 2.59 | 1.39 | 1.26 | .77 |
| AC-FT | 34680 | 77240 | 156100 | 116900 | 64500 | 59390 | 55070 | 32820 | 17250 | 9250 | 8400 | 5100 |

CAL YR 1975 TOTAL 336772 MEAN 923 MAX 8310 MIN 58 CFSM 7.38 IN 100.22 AC-FT 668000
WTR YR 1976 TOTAL 320987 MEAN 877 MAX 8310 MIN 58 CFSM 7.02 IN 95.52 AC-FT 636700

## 14223600 KALAMA RIVER ABOVE SPENCER CREEK, NEAR KALAMA, WA

LOCATION.--Lat 46°02'51", long 122°50'11", in SE¼NW¼ sec.32, T.7 N., R.1 W., Cowlitz County, Hydrologic Unit 17080003, on right bank at Modrow Road bridge, 0.6 mi (1.0 km) upstream from Spencer Creek, 2.1 mi (3.4 km) north of Kalama city limits, and at mile 2.8 (4.5 km).

DRAINAGE AREA.--202 $mi^2$ (325 $km^2$), approximately.

PERIOD OF RECORD.--Water years 1970 to current year (see REMARKS).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: May to November 1970, July 1971 to current year (see REMARKS).

INSTRUMENTATION.--Water temperature recorder since May 1970.

REMARKS.--Temperature records collected at this site prior to October 1973 are published in Water Resources Data for Oregon, Part 2. October 1972 to September 1973, published as 14223510 "below Cedar Creek."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology. No discharge records available.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 21.0°C July 4, 1970; minimum, 0.0°C Dec. 7-13, 1972, Jan. 9, 1973.

EXTREMES FOR CURRENT YEAR:
WATER TEMPERATURES: Maximum, 18.5°C July 24, 25; minimum, 3.0°C Feb.5-7.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| NOV 25... | 0945 | 1650 | 40 | 7.1 | 7.9 | 4 | 6 | 12.7 | B80 |
| MAR 17... | 0835 | 1160 | 61 | 7.4 | 8.0 | 13 | 6 | 12.0 | B180 |
| JUN 15... | 0845 | 625 | 45 | 6.7 | 11.9 | 8 | 4 | 11.2 | B60 |
| AUG 17... | 0840 | 590 | 51 | 7.4 | 11.5 | 25 | 4 | 10.8 | B2300 |

| DATE | FECAL COLIFORM (COL. PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) | CARBONATE (CO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| NOV 25... | <10 | 12 | 0 | 3.8 | .7 | 2.6 | 1.0 | 20 | -- |
| MAR 17... | B12 | 15 | 0 | 4.0 | 1.1 | 4.0 | 1.6 | 22 | -- |
| JUN 15... | 2 | 14 | 0 | 3.9 | 1.0 | 3.2 | .4 | 21 | 0 |
| AUG 17... | 66 | 17 | 0 | 4.9 | 1.2 | 3.4 | .5 | 24 | -- |

| DATE | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV 25... | 16 | 2.5 | 2.3 | 2.0 | .19 | .09 | .02 | .00 |
| MAR 17... | 18 | 1.4 | 6.4 | 2.2 | .17 | .05 | .02 | .00 |
| JUN 15... | 17 | 6.7 | 1.0 | 2.5 | .04 | .04 | .01 | .00 |
| AUG 17... | 20 | 1.5 | 1.6 | 3.3 | .15 | .05 | .04 | .01 |

## 14223600 KALAMA RIVER ABOVE SPENCER CREEK, NEAR KALAMA, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 12.5 | 11.0 | 7.5 | 6.5 | 7.5 | 6.0 | 5.0 | 4.0 | 5.5 | 4.5 | 5.0 | 4.0 |
| 2 | 12.5 | 11.5 | 8.5 | 7.5 | 8.0 | 7.5 | 5.0 | 4.0 | 5.0 | 4.5 | 5.0 | 4.0 |
| 3 | 12.0 | 11.5 | 9.5 | 8.5 | 7.5 | 7.5 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 | 3.5 |
| 4 | 11.5 | 11.0 | 9.0 | 8.0 | 7.5 | 6.0 | 6.5 | 5.0 | 4.5 | 3.5 | 5.0 | 4.0 |
| 5 | 11.5 | 11.0 | 8.5 | 8.0 | 6.0 | 5.5 | 6.0 | 5.5 | 3.0 | 2.0 | 4.5 | 3.5 |
| 6 | 11.5 | 10.5 | 8.0 | 7.0 | 6.5 | 5.5 | 5.5 | 5.0 | 2.5 | 2.0 | 5.0 | 4.0 |
| 7 | 10.5 | 9.5 | 7.5 | 6.5 | 7.5 | 6.5 | 6.0 | 5.0 | 3.5 | 2.0 | 5.0 | 4.5 |
| 8 | 10.5 | 9.5 | 7.0 | 6.0 | 8.0 | 7.5 | 6.5 | 6.0 | 4.0 | 3.0 | 5.5 | 4.5 |
| 9 | 10.5 | 10.0 | 6.0 | 6.0 | 7.5 | 7.0 | 6.0 | 5.5 | 4.5 | 4.0 | 5.5 | 5.0 |
| 10 | 10.5 | 9.5 | 6.0 | 6.0 | 7.5 | 6.5 | 6.0 | 5.5 | 5.0 | 4.5 | 6.0 | 5.0 |
| 11 | 11.0 | 9.5 | 6.5 | 6.0 | 6.0 | 5.5 | 5.5 | 5.0 | 5.0 | 4.5 | 5.5 | 5.0 |
| 12 | 10.5 | 9.5 | 6.5 | 5.5 | 5.0 | 4.0 | 5.5 | 5.0 | 6.0 | 5.0 | 5.0 | 4.5 |
| 13 | 10.0 | 9.0 | 7.0 | 5.5 | 4.5 | 3.5 | 5.5 | 5.0 | 6.5 | 5.5 | 6.0 | 5.0 |
| 14 | 10.5 | 9.5 | 8.0 | 7.0 | 4.5 | 4.5 | 6.5 | 6.0 | 6.0 | 5.0 | 6.0 | 5.5 |
| 15 | 11.0 | 10.0 | 8.0 | 6.5 | 5.5 | 4.5 | 6.5 | 6.0 | 5.0 | 5.0 | 6.5 | 5.5 |
| 16 | 10.5 | 9.5 | 6.5 | 5.5 | 6.0 | 5.5 | 7.0 | 6.0 | 6.0 | 5.0 | 7.5 | 6.5 |
| 17 | 10.5 | 9.5 | 6.0 | 5.5 | 5.5 | 5.0 | 7.0 | 6.5 | 5.5 | 5.0 | 7.5 | 7.0 |
| 18 | 10.5 | 10.0 | 6.0 | 5.0 | 5.0 | 4.5 | 6.5 | 6.0 | 5.5 | 5.0 | 7.0 | 5.5 |
| 19 | 10.0 | 9.0 | 5.5 | 4.5 | 5.0 | 4.5 | 5.5 | 5.0 | 5.5 | 5.0 | 5.5 | 4.5 |
| 20 | 9.5 | 9.0 | 6.0 | 5.5 | 4.5 | 4.0 | 5.5 | 5.0 | 5.5 | 5.0 | 5.5 | 5.0 |
| 21 | 9.0 | 8.5 | 6.5 | 6.0 | 4.5 | 4.0 | 5.5 | 4.5 | 6.0 | 4.5 | 6.5 | 5.0 |
| 22 | 8.5 | 7.5 | 6.5 | 6.0 | 5.5 | 5.0 | 5.5 | 5.0 | 7.0 | 5.5 | 7.0 | 5.5 |
| 23 | 8.0 | 7.5 | 7.0 | 6.5 | 6.0 | 5.0 | 5.5 | 5.0 | 7.0 | 6.5 | 5.5 | 5.0 |
| 24 | 8.0 | 7.0 | 7.5 | 7.0 | 7.0 | 6.0 | 5.0 | 4.5 | 6.5 | 5.0 | 5.5 | 5.0 |
| 25 | 8.0 | 7.5 | 7.5 | 7.5 | 7.0 | 5.5 | 4.5 | 4.5 | 5.5 | 4.5 | 6.0 | 5.0 |
| 26 | 7.5 | 7.0 | 7.5 | 7.0 | 7.5 | 6.0 | 5.5 | 4.5 | 5.5 | 5.0 | 6.0 | 5.5 |
| 27 | 7.5 | 6.5 | 7.0 | 6.0 | 6.5 | 5.5 | 6.5 | 5.5 | 5.5 | 5.0 | 6.0 | 5.0 |
| 28 | 7.5 | 6.5 | 5.5 | 4.5 | 7.0 | 6.0 | 7.0 | 6.5 | 5.5 | 4.5 | 6.0 | 5.0 |
| 29 | 8.0 | 7.0 | 4.5 | 4.0 | 7.5 | 7.0 | 6.5 | 5.0 | 5.5 | 4.5 | 7.0 | 5.0 |
| 30 | 8.0 | 7.5 | 6.5 | 4.5 | 7.0 | 5.5 | 5.5 | 5.0 | --- | --- | 7.5 | 6.5 |
| 31 | 7.5 | 7.0 | --- | --- | 5.5 | 5.0 | 5.5 | 5.0 | --- | --- | 7.5 | 5.5 |
| MONTH | 12.5 | 6.5 | 9.5 | 4.0 | 8.0 | 3.5 | 7.0 | 4.0 | 7.0 | 2.0 | 7.5 | 3.5 |

| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
| 1 | 6.0 | 5.0 | 10.5 | 8.0 | 9.0 | 8.0 | 12.5 | 11.0 | 15.0 | 13.5 | 17.0 | 14.0 |
| 2 | 6.5 | 5.0 | 10.5 | 7.5 | 10.5 | 8.0 | 14.5 | 10.5 | 14.5 | 13.0 | 15.0 | 13.5 |
| 3 | 7.5 | 6.0 | 8.5 | 7.0 | 10.5 | 8.5 | 14.5 | 12.0 | 15.5 | 12.5 | 15.5 | 13.0 |
| 4 | 7.5 | 6.5 | 9.0 | 7.5 | 11.5 | 9.5 | 14.5 | 12.0 | 14.5 | 13.5 | 15.0 | 13.0 |
| 5 | 8.0 | 6.5 | 8.5 | 7.5 | 11.5 | 9.0 | 16.5 | 12.5 | 14.5 | 12.5 | 14.5 | 13.0 |
| 6 | 8.0 | 6.5 | 9.5 | 7.5 | 12.5 | 10.0 | 17.0 | 13.5 | 13.0 | 12.5 | 13.5 | 12.0 |
| 7 | 7.5 | 6.5 | 10.5 | 8.5 | 11.5 | 10.5 | 15.5 | 14.0 | 12.5 | 11.5 | 13.0 | 11.5 |
| 8 | 7.5 | 7.0 | 10.5 | 9.5 | 10.5 | 10.0 | 13.5 | 12.5 | 13.0 | 11.0 | 13.0 | 10.5 |
| 9 | 7.5 | 6.0 | 11.0 | 9.0 | 12.5 | 9.5 | 13.0 | 12.5 | 13.0 | 12.0 | 13.0 | 11.0 |
| 10 | 8.0 | 6.5 | 11.0 | 8.5 | 12.5 | 11.0 | 12.5 | 11.5 | 16.0 | 12.5 | 13.5 | 12.0 |
| 11 | 8.0 | 6.5 | 9.0 | 8.0 | 11.0 | 10.0 | 13.0 | 10.5 | 17.0 | 14.0 | 13.0 | 12.5 |
| 12 | 7.5 | 6.5 | 10.5 | 8.5 | 11.0 | 9.5 | 12.5 | 11.0 | 16.5 | 14.0 | 13.0 | 12.5 |
| 13 | 7.5 | 6.5 | 10.5 | 9.5 | 11.5 | 9.5 | 15.0 | 11.0 | 16.0 | 13.5 | 13.5 | 11.5 |
| 14 | 7.0 | 6.0 | 9.5 | 8.5 | 13.5 | 9.5 | 16.5 | 12.0 | 14.0 | 12.5 | 13.0 | 12.0 |
| 15 | 6.0 | 5.0 | 11.0 | 9.0 | 12.5 | 11.0 | 17.5 | 12.5 | 13.0 | 12.0 | 13.5 | 11.5 |
| 16 | 6.5 | 5.0 | 10.5 | 9.5 | 12.0 | 10.5 | 18.0 | 14.0 | 12.5 | 11.5 | 13.0 | 12.0 |
| 17 | 6.5 | 5.5 | 10.0 | 9.0 | 14.5 | 11.0 | 16.0 | 14.0 | 13.5 | 11.0 | 13.0 | 12.5 |
| 18 | 6.5 | 5.5 | 10.5 | 8.5 | 15.5 | 13.0 | 16.5 | 12.0 | 15.0 | 11.5 | 13.5 | 12.0 |
| 19 | 6.5 | 6.0 | 10.0 | 8.5 | 14.5 | 12.5 | 17.0 | 13.0 | 13.0 | 11.5 | 14.0 | 12.0 |
| 20 | 7.5 | 6.5 | 11.0 | 8.0 | 13.5 | 11.5 | 16.5 | 13.5 | 13.5 | 11.0 | 14.0 | 13.0 |
| 21 | 7.5 | 5.5 | 12.0 | 9.5 | 14.0 | 12.0 | 14.5 | 13.0 | 15.0 | 11.5 | 14.0 | 13.0 |
| 22 | 7.5 | 6.5 | 11.0 | 10.0 | 13.0 | 11.0 | 17.0 | 12.5 | 15.0 | 12.0 | 13.5 | 13.0 |
| 23 | 7.0 | 6.0 | 11.0 | 9.5 | 12.0 | 10.5 | 18.0 | 14.0 | 15.0 | 12.5 | 13.0 | 12.5 |
| 24 | 7.5 | 6.5 | 10.0 | 9.0 | 13.0 | 10.5 | 18.5 | 15.0 | 15.5 | 13.5 | 13.5 | 12.0 |
| 25 | 7.0 | 5.5 | 10.0 | 8.5 | 13.5 | 10.5 | 18.5 | 15.0 | 14.5 | 13.0 | 13.0 | 12.0 |
| 26 | 8.0 | 5.5 | 13.0 | 9.0 | 14.0 | 10.0 | 18.0 | 14.0 | 14.0 | 12.0 | 13.5 | 12.5 |
| 27 | 8.5 | 7.0 | 12.0 | 10.5 | 16.0 | 11.0 | 16.5 | 13.0 | 15.0 | 12.5 | 14.0 | 13.0 |
| 28 | 9.0 | 8.0 | 10.0 | 8.5 | 16.5 | 12.5 | 17.0 | 13.5 | 16.5 | 13.0 | 14.0 | 13.5 |
| 29 | 9.5 | 7.5 | 9.0 | 8.0 | 15.5 | 13.5 | 16.0 | 14.0 | 17.0 | 14.0 | 14.0 | 12.5 |
| 30 | 10.5 | 8.5 | 9.0 | 8.0 | 14.0 | 12.0 | 15.5 | 13.5 | 16.5 | 14.0 | 14.0 | 13.0 |
| 31 | --- | --- | 9.5 | 8.0 | --- | --- | 16.0 | 12.5 | 16.5 | 14.5 | --- | --- |
| MONTH | 10.5 | 5.0 | 13.0 | 7.0 | 16.5 | 8.0 | 18.5 | 10.5 | 17.0 | 11.0 | 17.0 | 10.5 |
| YEAR | 18.5 | 2.0 | | | | | | | | | | |

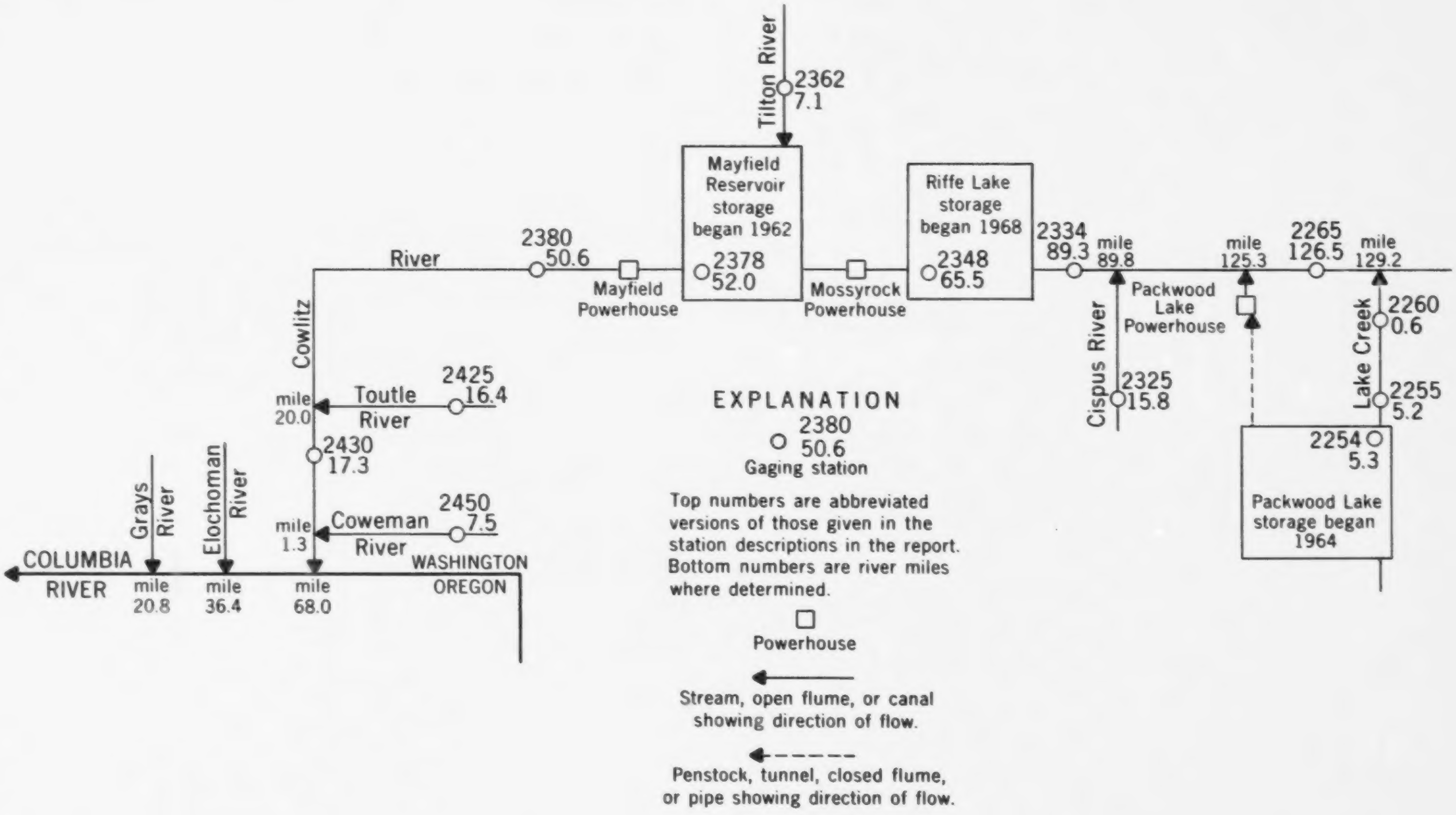
Tilton River
2362
7.1
Mayfield Reservoir storage began 1962
2378
52.0
Riffe Lake storage began 1968
2348
65.5
2380
50.6
River
Mayfield Powerhouse
Mossyrock Powerhouse
2334
89.3
mile 89.8
mile 125.3
2265
126.5
mile 129.2
Packwood Lake Powerhouse
Cispus River
2325
15.8
Lake Creek
2260
0.6
2255
5.2
2254
5.3
Packwood Lake storage began 1964
Cowlitz
mile 20.0
Toutle River
2425
16.4
2430
17.3
mile 1.3
Coweman River
2450
7.5
Grays River
Elochoman River
COLUMBIA RIVER
mile 20.8
mile 36.4
mile 68.0
WASHINGTON
OREGON
EXPLANATION
2380
50.6
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 20, Gaging stations in Cowlitz River basin.

## 14225400 PACKWOOD LAKE NEAR PACKWOOD, WA

**LOCATION.**--Lat 46°35'47", long 121°34'07", in SW¼ sec.21, T.13 N., R.10 E. (unsurveyed), Lewis County, Hydrologic Unit 17080004, Gifford Pinchot National Forest, at lake outlet 4.9 mi (7.9 km) east of Packwood and at mile 5.3 (8.5 km).

**DRAINAGE AREA.**--19.2 mi² (49.7 km²).

**PERIOD OF RECORD.**--August 1959 to current year. Chemical analyses September 1969 to October 1970.

**REVISED RECORDS.**--WSP 1935: 1959-60, drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is at mean sea level (levels by Washington Public Power Supply System from Corps of Engineers bench mark). Prior to Sept. 23, 1964, at site on north side of lake 1,500 ft (457 m) east of outlet at same datum.

**REMARKS.**--Reservoir is formed by low concrete dam at lake outlet completed during October 1963. Draft from the lake for continuous power generation began June 1, 1964. Regulation of lake elevations between 2,850.5 ft (868.83 m) and 2,858.5 ft (871.27 m) is allowed by stipulation of Federal Power Commission. Elevation of lake maintained between 2,856.5 ft (870.66 m) and 2,857.5 ft (870.97 m) during the summer season for forestry and fisheries protection and retention of natural scenic effect. No regulation or diversion above lake.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum elevation, 2,860.81 ft (871.97 m) Dec. 4, 1975; minimum, 2,850.50 ft (868.832 m) Oct. 4, 1971.

**EXTREMES FOR CURRENT YEAR.**--Maximum elevation, 2,860.81 ft (871.975 m) Dec. 4; minimum, 2,850.58 ft (868.857 m) Sept. 29.

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2850.65 | 2856.74 | 2856.55 | 2855.12 | 2855.83 | 2853.61 | 2852.70 | 2856.58 | 2856.47 | 2856.52 | 2856.51 | 2856.56 |
| 2 | 2850.76 | 2857.01 | 2859.79 | 2854.97 | 2855.71 | 2853.55 | 2852.66 | 2856.86 | 2856.49 | 2856.51 | 2856.58 | 2856.60 |
| 3 | 2851.04 | 2857.43 | 2860.61 | 2854.87 | 2855.70 | 2853.53 | 2852.63 | 2856.85 | 2856.46 | 2856.51 | 2856.66 | 2856.61 |
| 4 | 2851.38 | 2857.87 | 2860.64 | 2854.85 | 2855.71 | 2853.51 | 2852.61 | 2856.59 | 2856.50 | 2856.62 | 2856.63 | 2856.58 |
| 5 | 2851.59 | 2858.25 | 2859.81 | 2854.84 | 2855.64 | 2853.49 | 2852.59 | 2856.36 | 2856.52 | 2856.67 | 2856.64 | 2856.57 |
| 6 | 2851.90 | 2858.35 | 2859.10 | 2854.73 | 2855.60 | 2853.43 | 2852.65 | 2856.31 | 2856.53 | 2856.73 | 2856.74 | 2856.65 |
| 7 | 2852.06 | 2858.01 | 2858.84 | 2854.67 | 2855.56 | 2853.39 | 2852.73 | 2856.35 | 2856.55 | 2856.90 | 2856.81 | 2856.62 |
| 8 | 2852.19 | 2857.46 | 2858.80 | 2854.76 | 2855.51 | 2853.34 | 2852.90 | 2856.74 | 2856.60 | 2857.30 | 2856.75 | 2856.51 |
| 9 | 2852.33 | 2856.89 | 2858.78 | 2854.74 | 2855.45 | 2853.30 | 2853.03 | 2856.97 | 2856.60 | 2857.67 | 2856.56 | 2856.53 |
| 10 | 2852.48 | 2856.34 | 2858.56 | 2854.69 | 2855.37 | 2853.28 | 2853.14 | 2857.18 | 2856.65 | 2857.67 | 2856.55 | 2856.53 |
| 11 | 2852.60 | 2855.91 | 2858.21 | 2854.71 | 2855.29 | 2853.26 | 2853.27 | 2857.36 | 2856.65 | 2857.51 | 2856.55 | 2856.51 |
| 12 | 2852.69 | 2855.65 | 2857.90 | 2854.70 | 2855.32 | 2853.21 | 2853.39 | 2857.27 | 2856.70 | 2857.39 | 2856.52 | 2856.57 |
| 13 | 2852.79 | 2855.45 | 2857.52 | 2854.64 | 2855.25 | 2853.16 | 2853.49 | 2857.17 | 2856.62 | 2857.18 | 2856.51 | 2856.62 |
| 14 | 2852.88 | 2855.40 | 2856.93 | 2854.74 | 2855.18 | 2853.12 | 2853.56 | 2857.18 | 2856.56 | 2856.97 | 2856.48 | 2856.58 |
| 15 | 2853.14 | 2855.94 | 2856.39 | 2855.12 | 2855.10 | 2853.07 | 2853.68 | 2857.11 | 2856.57 | 2856.82 | 2856.48 | 2856.21 |
| 16 | 2853.31 | 2856.44 | 2855.78 | 2855.69 | 2855.09 | 2853.00 | 2853.71 | 2857.06 | 2856.91 | 2856.83 | 2856.53 | 2855.62 |
| 17 | 2853.47 | 2856.67 | 2855.29 | 2856.12 | 2855.06 | 2852.96 | 2853.73 | 2857.05 | 2857.20 | 2856.94 | 2856.50 | 2854.96 |
| 18 | 2853.75 | 2856.55 | 2855.12 | 2856.19 | 2855.11 | 2852.94 | 2853.74 | 2856.89 | 2857.41 | 2856.93 | 2856.51 | 2854.32 |
| 19 | 2854.02 | 2856.32 | 2854.95 | 2856.03 | 2855.02 | 2852.98 | 2853.78 | 2856.67 | 2857.74 | 2856.81 | 2856.54 | 2853.85 |
| 20 | 2854.31 | 2856.10 | 2854.87 | 2855.92 | 2854.91 | 2853.00 | 2854.07 | 2856.57 | 2858.01 | 2856.74 | 2856.64 | 2853.57 |
| 21 | 2854.54 | 2855.97 | 2854.81 | 2855.91 | 2854.76 | 2852.98 | 2854.33 | 2856.55 | 2858.02 | 2856.63 | 2856.64 | 2853.20 |
| 22 | 2854.72 | 2855.86 | 2854.76 | 2855.90 | 2854.60 | 2852.94 | 2854.56 | 2856.56 | 2857.81 | 2856.50 | 2856.54 | 2852.78 |
| 23 | 2854.86 | 2855.85 | 2854.71 | 2855.97 | 2854.44 | 2852.94 | 2854.79 | 2856.63 | 2857.46 | 2856.63 | 2856.54 | 2852.33 |
| 24 | 2854.98 | 2855.89 | 2854.69 | 2856.01 | 2854.34 | 2852.95 | 2855.05 | 2856.65 | 2857.10 | 2856.64 | 2856.58 | 2851.87 |
| 25 | 2855.18 | 2855.93 | 2854.60 | 2856.01 | 2854.24 | 2852.95 | 2855.30 | 2856.66 | 2856.77 | 2856.61 | 2856.66 | 2851.54 |
| 26 | 2855.49 | 2856.16 | 2854.87 | 2855.99 | 2854.11 | 2852.92 | 2855.52 | 2856.57 | 2856.44 | 2856.46 | 2856.62 | 2851.[illegible]5 |
| 27 | 2855.65 | 2856.20 | 2855.43 | 2856.09 | 2854.02 | 2852.91 | 2855.74 | 2856.66 | 2856.38 | 2856.32 | 2856.49 | 2850.94 |
| 28 | 2855.83 | 2856.01 | 2855.39 | 2856.10 | 2853.91 | 2852.89 | 2855.99 | 2856.63 | 2856.46 | 2856.43 | 2856.49 | 2850.74 |
| 29 | 2856.01 | 2855.75 | 2855.41 | 2856.08 | 2853.76 | 2852.83 | 2856.24 | 2856.57 | 2856.57 | 2856.50 | 2856.51 | 2850.62 |
| 30 | 2856.27 | 2855.69 | 2855.47 | 2856.00 | --- | 2852.75 | 2856.47 | 2856.45 | 2856.55 | 2856.55 | 2856.57 | 2850.78 |
| 31 | 2856.52 | --- | 2855.24 | 2855.93 | --- | 2852.74 | --- | 2856.38 | --- | 2856.63 | 2856.60 | --- |
| MEAN | 2853.53 | 2856.47 | 2856.77 | 2855.42 | 2855.02 | 2853.13 | 2853.94 | 2856.76 | 2856.84 | 2856.81 | 2856.58 | 2854.55 |
| MAX | 2856.52 | 2858.35 | 2860.64 | 2856.19 | 2855.83 | 2853.61 | 2856.47 | 2857.36 | 2858.02 | 2857.67 | 2856.81 | 2856.65 |
| MIN | 2850.65 | 2855.40 | 2854.60 | 2854.64 | 2853.76 | 2852.74 | 2852.59 | 2856.31 | 2856.38 | 2856.32 | 2856.48 | 2850.62 |

CAL YR 1975 MEAN 2855.50 MAX 2860.64 MIN 2850.65
WTR YR 1976 MEAN 2855.49 MAX 2860.64 MIN 2850.62

## 14225500 LAKE CREEK NEAR PACKWOOD, WA

LOCATION.--Lat 46°35'47", long 121°34'08", in SW¼ sec.21, T.13 N., R.10 E. (unsurveyed), Lewis County, Hydrologic Unit 17080004, Gifford Pinchot National Forest, on left bank 500 ft (152 m) downstream from outlet of Packwood Lake, 4.8 mi (7.7 km) east of Packwood and at mile 5.2 (8.4 km).

DRAINAGE AREA.--19.2 mi² (49.7 km²).

PERIOD OF RECORD.--September 1911 to September 1924 (published as "at outlet of Packwood Lake, near Lewis"), September 1930 to October 1942, October 1949 to May 1954, August 1959 to current year.

REVISED RECORDS.--WSP 394: 1912. WSP 1318: 1931. WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,844.62 ft (867.040 m) above mean sea level (levels by Washington Public Power Supply System from Corps of Engineers bench mark). Prior to Aug. 3, 1918, nonrecording gages at several sites at or within 100 ft (30 m) of present site at various datums. Aug. 3, 1918, to Sept. 30, 1924, water-stage recorder at site 110 ft (34 m) upstream at different datum.

REMARKS.--Records good. Since June 1, 1964, flow regulated by continuous operation of the powerplant which controls and diverts the outflow of the lake. Water diverted for power generation is not returned to Lake Creek.

AVERAGE DISCHARGE.--33 years (water years 1912-24, 1931-42, 1950-53, 1960-63), 101 ft³/s (2.86 m³/s), 71.44 in/yr (1,815 mm/yr), 73,120 acre-ft/yr (90.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,400 ft³/s (39.6 m³/s) Dec. 22, 1933, gage height, 5.9 ft (1.80 m); probably no flow at times during October 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, estimated by observer, 6.0 ft (1.83 m) Dec. 18, 1917, datum then in use (discharge not determined).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 888 ft³/s (25.1 m³/s) Dec. 3, gage height, 5.87 ft (1.789 m); minimum, 1.9 ft³/s (0.054 m³/s) Apr. 19, 21, gage height, 1.06 ft (0.323 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.1 | 5.0 | 12 | 5.8 | 6.2 | 5.0 | 9.5 | 4.0 | 3.0 | 3.3 | 6.0 | 5.3 |
| 2 | 7.0 | 5.1 | 437 | 6.0 | 6.2 | 4.2 | 6.0 | 5.2 | 3.2 | 3.3 | 6.0 | 5.3 |
| 3 | 12 | 5.3 | 777 | 5.8 | 6.2 | 4.0 | 5.3 | 5.2 | 3.3 | 3.3 | 5.8 | 5.3 |
| 4 | 19 | 5.5 | 754 | 5.8 | 6.2 | 4.0 | 5.3 | 4.0 | 3.3 | 3.3 | 6.0 | 5.3 |
| 5 | 20 | 5.8 | 365 | 5.8 | 6.2 | 4.0 | 4.7 | 4.0 | 3.3 | 4.0 | 6.2 | 5.3 |
| 6 | 19 | 5.3 | 130 | 5.8 | 6.2 | 4.0 | 4.2 | 4.0 | 3.3 | 4.7 | 6.2 | 5.3 |
| 7 | 18 | 5.4 | 67 | 6.0 | 6.2 | 4.0 | 4.4 | 4.0 | 3.3 | 7.5 | 6.2 | 5.3 |
| 8 | 18 | 5.7 | 58 | 6.0 | 6.2 | 3.8 | 4.7 | 7.9 | 3.3 | 13 | 6.2 | 5.3 |
| 9 | 19 | 5.5 | 54 | 6.0 | 6.2 | 3.8 | 4.4 | 3.5 | 3.2 | 4.0 | 4.7 | 5.3 |
| 10 | 19 | 5.2 | 25 | 6.0 | 6.5 | 3.8 | 4.4 | 3.5 | 3.2 | 4.0 | 3.5 | 5.1 |
| 11 | 19 | 5.6 | 11 | 6.0 | 6.5 | 3.8 | 4.7 | 3.7 | 3.2 | 4.0 | 3.7 | 5.1 |
| 12 | 20 | 5.8 | 6.5 | 6.0 | 6.5 | 3.8 | 4.7 | 3.8 | 3.2 | 3.8 | 3.8 | 5.1 |
| 13 | 20 | 5.7 | 6.2 | 6.0 | 6.2 | 3.8 | 4.4 | 3.7 | 3.2 | 3.7 | 4.4 | 5.1 |
| 14 | 18 | 6.0 | 6.2 | 6.0 | 6.5 | 3.8 | 4.0 | 3.7 | 3.2 | 3.7 | 4.4 | 5.1 |
| 15 | 17 | 6.1 | 6.5 | 6.6 | 6.5 | 3.7 | 4.0 | 3.7 | 3.2 | 3.5 | 4.4 | 6.4 |
| 16 | 17 | 6.1 | 6.2 | 7.2 | 6.5 | 3.8 | 4.0 | 3.5 | 3.2 | 3.3 | 4.4 | 7.0 |
| 17 | 18 | 5.7 | 6.2 | 6.5 | 6.5 | 4.0 | 4.0 | 3.5 | 3.7 | 3.5 | 4.7 | 6.4 |
| 18 | 18 | 5.6 | 6.2 | 6.5 | 6.5 | 4.0 | 4.0 | 3.3 | 4.7 | 3.5 | 5.1 | 6.2 |
| 19 | 18 | 5.8 | 6.0 | 6.7 | 6.5 | 4.0 | 2.7 | 3.8 | 12 | 3.7 | 5.3 | 6.0 |
| 20 | 19 | 5.8 | 6.0 | 6.2 | 6.5 | 4.0 | 2.0 | 3.7 | 17 | 3.5 | 5.3 | 9.0 |
| 21 | 19 | 5.8 | 6.0 | 6.0 | 6.5 | 4.0 | 3.1 | 3.5 | 18 | 3.3 | 5.3 | 12 |
| 22 | 19 | 5.5 | 6.0 | 6.2 | 6.2 | 4.0 | 4.0 | 3.5 | 19 | 4.2 | 5.3 | 12 |
| 23 | 18 | 5.7 | 6.0 | 6.2 | 6.7 | 4.0 | 4.0 | 3.5 | 20 | 6.2 | 5.3 | 11 |
| 24 | 18 | 5.5 | 6.0 | 6.2 | 6.5 | 4.0 | 4.2 | 3.3 | 4.3 | 6.2 | 5.3 | 13 |
| 25 | 19 | 5.6 | 5.8 | 6.2 | 6.5 | 3.8 | 4.2 | 3.3 | 4.4 | 6.2 | 5.5 | 15 |
| 26 | 19 | 5.9 | 6.0 | 6.2 | 6.2 | 3.8 | 4.0 | 3.3 | 3.8 | 6.0 | 5.3 | 14 |
| 27 | 18 | 5.8 | 6.0 | 6.2 | 6.5 | 3.8 | 3.8 | 3.3 | 3.8 | 6.0 | 5.3 | 16 |
| 28 | 18 | 5.7 | 5.8 | 6.2 | 6.7 | 3.8 | 3.8 | 3.3 | 3.7 | 5.8 | 5.3 | 16 |
| 29 | 18 | 5.5 | 5.8 | 6.2 | 6.5 | 3.8 | 4.0 | 3.2 | 3.3 | 6.5 | 5.3 | 18 |
| 30 | 11 | 5.5 | 6.0 | 6.2 | --- | 4.6 | 4.0 | 3.2 | 3.3 | 6.2 | 5.3 | 20 |
| 31 | 7.4 | --- | 6.2 | 6.2 | --- | 9.3 | --- | 3.2 | --- | 6.0 | 5.3 | --- |
| TOTAL | 525.5 | 168.5 | 2811.6 | 190.7 | 185.3 | 128.2 | 130.5 | 118.3 | 172.6 | 149.2 | 160.8 | 261.2 |
| MEAN | 17.0 | 5.62 | 90.7 | 6.15 | 6.39 | 4.14 | 4.35 | 3.82 | 5.75 | 4.81 | 5.19 | 8.71 |
| MAX | 20 | 6.1 | 777 | 7.2 | 6.7 | 9.3 | 9.5 | 7.9 | 20 | 13 | 6.2 | 20 |
| MIN | 6.1 | 5.0 | 5.8 | 5.8 | 6.2 | 3.7 | 2.0 | 3.2 | 3.0 | 3.3 | 3.5 | 5.1 |
| AC-FT | 1040 | 334 | 5580 | 378 | 368 | 254 | 259 | 235 | 342 | 296 | 319 | 518 |

CAL YR 1975 TOTAL 6881.9 MEAN 18.9 MAX 777 MIN 2.3 AC-FT 13650
WTR YR 1976 TOTAL 5002.4 MEAN 13.7 MAX 777 MIN 2.0 AC-FT 9920

## 14226000 LAKE CREEK AT MOUTH, NEAR PACKWOOD, WA

LOCATION.--Lat 46°37'48", long 121°38'12", in NE¼SE¼ sec.11, T.13 N., R.9 E., Lewis County, Hydrologic Unit 17080004, on right bank 0.2 mi (0.3 km) upstream from bridge on State Highway 14, 2.3 mi (3.7 km) northeast of Packwood and at mile 0.6 (1.0 km).

DRAINAGE AREA.--26.5 mi² (68.6 km²).

PERIOD OF RECORD.--August 1907 to September 1915 (published as "at mouth, near Lewis"), August 1962 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1318: 1911. WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,190 ft (363 m), from topographic map. Aug. 21, 1907, to Jan. 22, 1913, and Mar. 11, 1913, to Sept. 30, 1915, nonrecording gage at site 0.4 mi (0.6 km) downstream at different datum. Aug. 1, 1962, to Aug. 4, 1964, at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records good. Since June 1, 1964, flow regulated by continuous operation of the powerplant which controls and diverts the outflow of Packwood Lake. Water diverted for power generation is not returned to Lake Creek.

AVERAGE DISCHARGE.--9 years (water years 1908-15, 1963), 120 ft³/s (3.398 m³/s), 61.49 in/yr (1,562 mm/yr), 86,880 acre-ft/yr (107 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,470 ft³/s (41.6 m³/s) Dec. 4, 1975, gage height, 5.61 ft (1.710 m); minimum daily, 5 ft³/s (0.14 m³/s) estimated Oct. 10, 19, 1963, caused by regulation during construction of intake structure at Packwood Lake.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,470 ft³/s (41.6 m³/s) Dec. 4, gage height, 5.61 ft (1.710 m); minimum, 12 ft³/s (0.34 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | 26 | 214 | 59 | 44 | 36 | 40 | 49 | 35 | 27 | 21 | 16 |
| 2 | 13 | 27 | 718 | 54 | 41 | 34 | 35 | 59 | 35 | 27 | 20 | 16 |
| 3 | 18 | 29 | 1110 | 50 | 39 | 32 | 34 | 54 | 35 | 27 | 20 | 16 |
| 4 | 26 | 27 | 1130 | 58 | 39 | 31 | 36 | 48 | 34 | 26 | 20 | 16 |
| 5 | 27 | 26 | 470 | 66 | 38 | 31 | 42 | 44 | 34 | 26 | 21 | 16 |
| 6 | 26 | 27 | 216 | 60 | 37 | 31 | 50 | 42 | 34 | 26 | 21 | 16 |
| 7 | 24 | 33 | 174 | 57 | 37 | 30 | 49 | 40 | 33 | 26 | 23 | 16 |
| 8 | 24 | 32 | 181 | 63 | 36 | 30 | 58 | 47 | 33 | 35 | 21 | 16 |
| 9 | 25 | 29 | 153 | 64 | 36 | 30 | 59 | 43 | 32 | 25 | 19 | 16 |
| 10 | 25 | 27 | 99 | 59 | 35 | 31 | 54 | 43 | 32 | 24 | 18 | 15 |
| 11 | 25 | 26 | 77 | 67 | 37 | 30 | 57 | 41 | 31 | 24 | 17 | 15 |
| 12 | 25 | 24 | 63 | 60 | 40 | 30 | 53 | 39 | 32 | 23 | 17 | 15 |
| 13 | 25 | 25 | 58 | 54 | 42 | 30 | 47 | 37 | 31 | 23 | 17 | 15 |
| 14 | 24 | 34 | 53 | 91 | 44 | 30 | 44 | 36 | 31 | 23 | 17 | 16 |
| 15 | 23 | 62 | 51 | 223 | 43 | 30 | 41 | 35 | 31 | 22 | 18 | 16 |
| 16 | 23 | 55 | 48 | 206 | 54 | 30 | 37 | 35 | 32 | 22 | 18 | 16 |
| 17 | 23 | 45 | 44 | 149 | 61 | 34 | 36 | 35 | 31 | 22 | 17 | 16 |
| 18 | 24 | 38 | 43 | 99 | 60 | 39 | 35 | 34 | 31 | 22 | 17 | 15 |
| 19 | 26 | 34 | 40 | 81 | 52 | 38 | 34 | 35 | 35 | 22 | 18 | 15 |
| 20 | 26 | 31 | 39 | 70 | 47 | 37 | 37 | 35 | 42 | 21 | 18 | 15 |
| 21 | 28 | 29 | 37 | 62 | 44 | 35 | 37 | 35 | 42 | 21 | 17 | 20 |
| 22 | 27 | 29 | 37 | 57 | 42 | 35 | 37 | 35 | 40 | 21 | 17 | 20 |
| 23 | 26 | 35 | 42 | 54 | 42 | 35 | 37 | 35 | 46 | 22 | 17 | 19 |
| 24 | 25 | 43 | 54 | 50 | 44 | 40 | 37 | 36 | 29 | 22 | 17 | 20 |
| 25 | 30 | 44 | 60 | 46 | 45 | 41 | 38 | 36 | 29 | 22 | 17 | 23 |
| 26 | 33 | 59 | 85 | 42 | 43 | 39 | 37 | 36 | 29 | 22 | 17 | 22 |
| 27 | 30 | 56 | 88 | 56 | 42 | 37 | 36 | 36 | 28 | 21 | 17 | 23 |
| 28 | 29 | 48 | 78 | 61 | 40 | 36 | 37 | 36 | 28 | 21 | 16 | 24 |
| 29 | 33 | 41 | 79 | 57 | 37 | 34 | 38 | 36 | 28 | 21 | 16 | 25 |
| 30 | 37 | 51 | 78 | 53 | --- | 34 | 42 | 36 | 27 | 21 | 16 | 28 |
| 31 | 32 | --- | 68 | 48 | --- | 38 | --- | 36 | --- | 21 | 16 | --- |
| TOTAL | 795 | 1092 | 5687 | 2276 | 1241 | 1048 | 1254 | 1224 | 990 | 728 | 561 | 537 |
| MEAN | 25.6 | 36.4 | 183 | 73.4 | 42.8 | 33.8 | 41.8 | 39.5 | 33.0 | 23.5 | 18.1 | 17.9 |
| MAX | 37 | 62 | 1130 | 223 | 61 | 41 | 59 | 59 | 46 | 35 | 23 | 28 |
| MIN | 13 | 24 | 37 | 42 | 35 | 30 | 34 | 34 | 27 | 21 | 16 | 15 |
| AC-FT | 1580 | 2170 | 11280 | 4510 | 2460 | 2080 | 2490 | 2430 | 1960 | 1440 | 1110 | 1070 |

CAL YR 1975 TOTAL 19478 MEAN 53.4 MAX 1130 MIN 12 AC-FT 38630
WTR YR 1976 TOTAL 17433 MEAN 47.6 MAX 1130 MIN 13 AC-FT 34580

## 14226500 COWLITZ RIVER AT PACKWOOD, WA

LOCATION.--Lat 46°36'47", long 121°40'41", in SE¼SE¼ sec.16, T.13 N., R.9 E., Lewis County, Hydrologic Unit 1780004, on right bank 8 ft (2.4 m), upstream from Forest Service bridge, 0.6 mi (1.0 km) northwest of Packwood, 0.8 mi (1.3 km) upstream from Skate Creek, and at mile 126.5 (203.5 km).

DRAINAGE AREA.--287 mi² (743 km²).

PERIOD OF RECORD.-July 1911 to December 1919, September 1929 to current year. Published as "at Lewis" 1911-19, water temperatures, November 1970 to April 1971.

REVISED RECORDS.--WSP 884: 1938. WSP 1348: 1916-18(M), 1934. WSP 1638: 1947(P).

GAGE.--Water-stage recorder. Datum of gage is 1,048.0 ft (319.43 m) above mean sea level (Bureau of Public Roads bench mark). July 1, 1911, to Dec. 31, 1919, nonrecording gages at site about 1 mi (1.6 km) upstream at different datums. Sept. 30, 1929, to Jan. 1, 1930, nonrecording gage at present site and datum.

REMARKS.--Records good except those for periods Dec. 15 to Mar. 23 and July 10 to Aug. 30 which are fair. Minor regulation by Packwood Lake (see sta 14225400) beginning June 1964. Small diversions for domestic use. Monthly mean diversion, in cubic feet per second, from Packwood Lake for power generation, returned about 1 mi (1.6 km) below station, for the 1976 water year is as follows:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| October........ | 0.11 | January........ | 131 | April........ | 28.9 | July........ | 205 |
| November....... | 105 | February....... | 87.3 | May.......... | 192 | August...... | 130 |
| December....... | 141 | March.......... | 47.4 | June......... | 179 | September... | 109 |

AVERAGE DISCHARGE.--55 years,(water years 1912-19, 1930-76), 1,654 ft³/s (46.84 m³/s), 1,198,000 acre-ft/yr (1,480 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,000 ft³/s (1,020 m³/s) Dec. 21, 1933, gage height, 13.0 ft (3.96 m), from rating curve extended above 20,000 ft³/s (566 m³/s); maximum gage height, 13.54 ft (4.127 m) Nov. 23, 1959; minimum discharge, 130 cfs (3.68 m³/s) Nov. 29, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,500 ft³/s (212 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 4 | 0530 | *30,600 | 867 | *12.80 | 3.901 | July 8 | 0815 | 7,750 | 219 | 7.06 | 2.152 |

Minimum discharge, 358 ft³/s (10.1 m³/s) Oct. 14; minimum gage height, 2.21 ft. (0.674 m) Sept. 27.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 404 | 1590 | 13400 | 2190 | 1830 | 660 | 720 | 2850 | 2000 | 3060 | 1720 | 1150 |
| 2 | 440 | 2240 | 19100 | 1920 | 1680 | 606 | 678 | 4260 | 1900 | 2760 | 1680 | 1040 |
| 3 | 598 | 3740 | 21000 | 1780 | 1660 | 594 | 672 | 3620 | 1730 | 2890 | 1760 | 923 |
| 4 | 790 | 3370 | 19100 | 1820 | 1370 | 552 | 720 | 3230 | 1720 | 3200 | 1670 | 888 |
| 5 | 574 | 3000 | 7040 | 1910 | 1240 | 546 | 916 | 2880 | 1780 | 3460 | 1610 | 881 |
| 6 | 630 | 2540 | 4110 | 1720 | 1100 | 530 | 1320 | 2640 | 1950 | 4090 | 1830 | 839 |
| 7 | 454 | 2110 | 3720 | 1520 | 1000 | 520 | 1390 | 2930 | 2070 | 4440 | 2270 | 720 |
| 8 | 422 | 1700 | 5100 | 1600 | 960 | 510 | 1860 | 4080 | 2680 | 6480 | 1890 | 654 |
| 9 | 475 | 1430 | 4420 | 1530 | 930 | 490 | 2020 | 5170 | 3140 | 4360 | 1700 | 624 |
| 10 | 526 | 1240 | 3350 | 1380 | 880 | 558 | 1970 | 5700 | 3460 | 3180 | 1630 | 624 |
| 11 | 434 | 1080 | 2670 | 1400 | 818 | 540 | 2260 | 4760 | 3060 | 2690 | 1610 | 672 |
| 12 | 392 | 971 | 2260 | 1280 | 916 | 535 | 2120 | 3780 | 2990 | 2690 | 1600 | 690 |
| 13 | 369 | 930 | 2040 | 1200 | 970 | 520 | 1830 | 4400 | 2670 | 2470 | 1540 | 630 |
| 14 | 363 | 1610 | 1820 | 1700 | 940 | 510 | 1620 | 4440 | 2340 | 2550 | 1320 | 684 |
| 15 | 688 | 4800 | 1800 | 4710 | 900 | 505 | 1460 | 3860 | 2750 | 2720 | 1490 | 696 |
| 16 | 558 | 3360 | 1550 | 6200 | 980 | 540 | 1260 | 3940 | 5260 | 3140 | 1510 | 666 |
| 17 | 780 | 2530 | 1350 | 4850 | 1040 | 600 | 1140 | 3980 | 4830 | 3300 | 1210 | 642 |
| 18 | 971 | 2070 | 1250 | 3770 | 1200 | 741 | 1030 | 3200 | 5010 | 3060 | 1100 | 636 |
| 19 | 1490 | 1820 | 1150 | 2920 | 1100 | 748 | 978 | 2920 | 5360 | 2780 | 1030 | 708 |
| 20 | 1340 | 1660 | 1050 | 2320 | 1000 | 750 | 1150 | 2600 | 4740 | 2610 | 1540 | 783 |
| 21 | 1060 | 1550 | 1000 | 1920 | 910 | 740 | 1120 | 2530 | 4010 | 2400 | 1320 | 776 |
| 22 | 890 | 1510 | 960 | 1750 | 830 | 720 | 1070 | 2810 | 3420 | 2130 | 1140 | 734 |
| 23 | 790 | 1640 | 1000 | 1700 | 776 | 734 | 1020 | 2960 | 2880 | 2360 | 1120 | 672 |
| 24 | 715 | 2640 | 1200 | 1400 | 804 | 909 | 1120 | 2830 | 2620 | 2600 | 1170 | 642 |
| 25 | 880 | 2820 | 2000 | 1200 | 846 | 923 | 1130 | 2830 | 2610 | 2370 | 1390 | 642 |
| 26 | 1080 | 3210 | 5380 | 1300 | 825 | 860 | 1070 | 2620 | 2330 | 2140 | 1130 | 636 |
| 27 | 930 | 2750 | 4670 | 2300 | 727 | 818 | 1110 | 3450 | 2500 | 1970 | 909 | 630 |
| 28 | 890 | 2220 | 3260 | 2410 | 748 | 776 | 1240 | 3200 | 3210 | 1840 | 909 | 642 |
| 29 | 1410 | 1650 | 3540 | 2360 | 760 | 714 | 1400 | 2580 | 3990 | 1860 | 938 | 666 |
| 30 | 2620 | 1660 | 3610 | 2100 | --- | 696 | 1940 | 2270 | 3560 | 1780 | 1000 | 648 |
| 31 | 1960 | --- | 2750 | 1900 | --- | 755 | --- | 2100 | --- | 1780 | 1090 | --- |
| TOTAL | 25923 | 65441 | 146650 | 68060 | 29740 | 20200 | 39334 | 105420 | 92570 | 89160 | 43826 | 21838 |
| MEAN | 836 | 2181 | 4731 | 2195 | 1026 | 652 | 1311 | 3401 | 3086 | 2876 | 1414 | 728 |
| MAX | 2620 | 4800 | 21000 | 6200 | 1830 | 923 | 2260 | 5700 | 5360 | 6480 | 2270 | 1150 |
| MIN | 363 | 930 | 960 | 1200 | 727 | 490 | 672 | 2100 | 1720 | 1780 | 909 | 624 |
| CFSM | 2.91 | 7.60 | 16.5 | 7.65 | 3.57 | 2.27 | 4.57 | 11.9 | 10.8 | 10.0 | 4.93 | 2.54 |
| IN. | 3.36 | 8.48 | 19.01 | 8.82 | 3.85 | 2.62 | 5.10 | 13.66 | 12.00 | 11.56 | 5.68 | 2.83 |
| AC-FT | 51420 | 129800 | 290900 | 135000 | 58990 | 40070 | 78020 | 209100 | 183600 | 176800 | 86930 | 43320 |

CAL YR 1975 TOTAL 751173 MEAN 2058 MAX 21000 MIN 363 CFSM 7.17 IN 97.36 AC-FT 1490000
WTR YR 1976 TOTAL 748162 MEAN 2044 MAX 21000 MIN 363 CFSM 7.12 IN 96.97 AC-FT 1484000

## 14232500 CISPUS RIVER NEAR RANDLE, WA

LOCATION.--Lat 46°26'50", long 121°51'46", in NW¼ sec.18, T.11 N., R.8 E. (unsurveyed), Lewis County, Hydrologic Unit 17080004, Gifford Pinchot National Forest, on left bank 60 ft (18 m) upstream from bridge to Tower Rock ranger station, 4.1 mi (6.6 km) downstream from North Fork, 8.0 mi (12.9 km) southeast of Randle, and at mile 15.8 (25.4 km).

DRAINAGE AREA.--321 mi² (831 km²).

PERIOD OF RECORD.--October 1910 to February 1912, September 1929 to current year. Water temperatures May 1950 to September 1972.

REVISED RECORDS.--WSP 794: 1934. WSP 1288: Drainage area. WSP 1935: 1950-53, 1954(M), 1955-56, 1957(M) 1960.

GAGE.--Water-stage recorder. Datum of gage is 1,221.60 ft (372.344 m) above mean sea level. Prior to Mar. 1, 1912, nonrecording gage at site 1 mi (1.6 km) upstream at different datum. Sept. 28, 1929, to Nov. 26, 1949, Oct. 1-24, 1950, water-stage recorder at site 450 ft (137 m) upstream at datum 0.26 ft (0.079 m) higher.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--48 years (1910-11, 1929-76), 1,357 ft³/s (38.43 m³/s), 57.41 in/yr (1,458 mm/yr), 983,100 acre-ft/yr (1,210 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,700 ft³/s (615 m³/s) Jan. 15, 1974, gage height, 12.58 ft (3.834 m), from rating curve extended above 8,700 ft³/s (246 m³/s) on basis of slope-area measurement of peak flow; minimum, 183 ft³/s (5.18 m³/s), Dec. 10, 1936; minimum gage height, 2.55 ft (0.777 m) Oct. 25, 1942, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s (113 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 15 | 0930 | 5,760 | 163 | 7.23 | 2.204 | Jan. 16 | 0300 | 5,120 | 145 | 6.86 | 2.091 |
| Dec. 4 | 0800 | *17,300 | 490 | *11.33 | 3.453 | May 2 | 0700 | 4,380 | 124 | 6.47 | 1.972 |
| Dec. 26 | 1815 | 4,380 | 124 | 6.47 | 1.972 | May 10 | 0100 | 4,920 | 139 | 6.76 | 2.060 |

Minimum discharge, 410 ft³/s (11.6 m³/s) Oct. 15, 16; minimum gage height, 3.16 ft (0.963 m) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 440 | 1220 | 7380 | 2420 | 1410 | 800 | 835 | 2920 | 1810 | 1890 | 886 | 611 |
| 2 | 437 | 1270 | 10900 | 2160 | 1380 | 758 | 800 | 4210 | 1690 | 1720 | 835 | 587 |
| 3 | 501 | 1900 | 10300 | 1940 | 1350 | 730 | 800 | 3800 | 1570 | 1700 | 856 | 563 |
| 4 | 546 | 2120 | 13600 | 1920 | 1260 | 710 | 856 | 3450 | 1520 | 1770 | 807 | 557 |
| 5 | 506 | 1950 | 6500 | 1950 | 1140 | 697 | 1020 | 3160 | 1510 | 1820 | 800 | 557 |
| 6 | 510 | 1890 | 4300 | 1750 | 1130 | 691 | 1330 | 2930 | 1570 | 1910 | 878 | 563 |
| 7 | 444 | 1710 | 4600 | 1690 | 1090 | 678 | 1360 | 3140 | 1740 | 2020 | 1160 | 528 |
| 8 | 433 | 1470 | 4870 | 1810 | 1050 | 665 | 1800 | 3850 | 2090 | 2500 | 1040 | 501 |
| 9 | 483 | 1280 | 4340 | 1710 | 995 | 665 | 2030 | 4540 | 2360 | 2200 | 902 | 485 |
| 10 | 528 | 1170 | 3610 | 1600 | 950 | 684 | 2030 | 4870 | 2550 | 1770 | 849 | 485 |
| 11 | 479 | 1060 | 3040 | 1620 | 926 | 671 | 2340 | 4470 | 2380 | 1620 | 800 | 490 |
| 12 | 457 | 977 | 2600 | 1500 | 942 | 653 | 2250 | 3760 | 2320 | 1600 | 772 | 495 |
| 13 | 444 | 954 | 2270 | 1370 | 968 | 647 | 1990 | 3870 | 2210 | 1520 | 765 | 485 |
| 14 | 437 | 1470 | 1960 | 1990 | 934 | 647 | 1810 | 3850 | 1990 | 1440 | 744 | 501 |
| 15 | 467 | 4740 | 1780 | 3970 | 886 | 641 | 1650 | 3540 | 2050 | 1430 | 814 | 528 |
| 16 | 453 | 3530 | 1620 | 5040 | 1010 | 665 | 1470 | 3560 | 2720 | 1480 | 849 | 501 |
| 17 | 463 | 2520 | 1460 | 4560 | 1060 | 807 | 1340 | 3590 | 3040 | 1530 | 751 | 495 |
| 18 | 561 | 1960 | 1350 | 3820 | 1030 | 959 | 1230 | 3050 | 3130 | 1470 | 723 | 485 |
| 19 | 543 | 1650 | 1250 | 3110 | 968 | 942 | 1150 | 2780 | 3220 | 1360 | 684 | 490 |
| 20 | 564 | 1450 | 1180 | 2620 | 918 | 894 | 1300 | 2490 | 2990 | 1310 | 717 | 501 |
| 21 | 596 | 1300 | 1100 | 2270 | 878 | 849 | 1240 | 2360 | 2630 | 1230 | 717 | 495 |
| 22 | 597 | 1210 | 1070 | 2050 | 856 | 870 | 1200 | 2450 | 2410 | 1140 | 684 | 490 |
| 23 | 557 | 1180 | 1140 | 1890 | 870 | 863 | 1140 | 2570 | 2090 | 1170 | 665 | 475 |
| 24 | 529 | 1380 | 1430 | 1700 | 894 | 995 | 1180 | 2530 | 1960 | 1170 | 678 | 460 |
| 25 | 589 | 1570 | 1460 | 1560 | 886 | 968 | 1180 | 2590 | 1910 | 1150 | 691 | 450 |
| 26 | 716 | 1910 | 3140 | 1440 | 878 | 926 | 1120 | 2490 | 1720 | 1060 | 671 | 440 |
| 27 | 673 | 1860 | 3590 | 1590 | 910 | 894 | 1150 | 2930 | 1690 | 995 | 623 | 435 |
| 28 | 675 | 1630 | 2840 | 1590 | 870 | 863 | 1300 | 2800 | 1820 | 934 | 623 | 435 |
| 29 | 925 | 1420 | 2930 | 1590 | 842 | 814 | 1430 | 2420 | 2130 | 942 | 611 | 435 |
| 30 | 1720 | 1640 | 3260 | 1520 | --- | 807 | 1990 | 2220 | 2020 | 950 | 605 | 435 |
| 31 | 1500 | --- | 2830 | 1450 | --- | 878 | --- | 1990 | --- | 942 | 611 | --- |
| TOTAL | 18773 | 51391 | 113700 | 67200 | 29281 | 24331 | 42321 | 99180 | 64840 | 45743 | 23811 | 14958 |
| MEAN | 606 | 1713 | 3668 | 2168 | 1010 | 785 | 1411 | 3199 | 2161 | 1476 | 768 | 499 |
| MAX | 1720 | 4740 | 13600 | 5040 | 1410 | 995 | 2340 | 4870 | 3220 | 2500 | 1160 | 611 |
| MIN | 433 | 954 | 1070 | 1370 | 842 | 641 | 800 | 1990 | 1510 | 934 | 605 | 435 |
| CFSM | 1.89 | 5.34 | 11.4 | 6.75 | 3.15 | 2.45 | 4.40 | 9.97 | 6.73 | 4.60 | 2.39 | 1.55 |
| IN. | 2.18 | 5.96 | 13.18 | 7.79 | 3.39 | 2.82 | 4.90 | 11.49 | 7.51 | 5.30 | 2.76 | 1.73 |
| AC-FT | 37240 | 101900 | 225500 | 133300 | 58080 | 48260 | 83940 | 196700 | 128600 | 90730 | 47230 | 29670 |

CAL YR 1975 TOTAL 617858 MEAN 1693 MAX 13600 MIN 433 CFSM 5.27 IN 71.60 AC-FT 1226000
WTR YR 1976 TOTAL 595529 MEAN 1627 MAX 13600 MIN 433 CFSM 5.07 IN 69.01 AC-FT 1181000

## COWLITZ RIVER BASIN

### 14233400 COWLITZ RIVER NEAR RANDLE, WA

LOCATION.--Lat 46°28'13", long 122°05'51", in NE¼ sec.6, T.11 N., R.6 E., Lewis County, Hydrologic Unit 17080005, on right bank 0.5 mi (0.8 km) downstream from Cispus River, 8.1 mi (13.0 km) southwest of Randle, and at mile 89.3 (143.7 km).

DRAINAGE AREA.--1,030 mi² (2,668 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD. October 1947 to current year. Prior to October 1967, published as "near Kosmos". Records published for both sites October 1967 to September 1968. Monthly discharge only for some period published in WSP 1318.

GAGE.--Water-stage recorder. Datum of gage is 792.30 ft (241.493 m) above mean sea level (levels by city of Tacoma). Prior to Dec. 3, 1948, nonrecording gage at site 0.9 mi (1.4 km) downstream at different datum. Dec. 3, 1948, to September 1967, at site 1.4 mi (2.3 km) downstream at datum 33.01 ft (10.061 m) lower (levels by city of Tacoma).

REMARKS.--Water-discharge records excellent. Minor regulation by Packwood Lake (14225400) beginning June 1964. Small diversions for domestic use and irrigation above station.

AVERAGE DISCHARGE.--29 years, 5,142 ft³/s (145.6 m³/s), 67.79 in/yr (1,722 mm/yr), 3,725,000 acre-ft/yr (4,590 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,300 ft³/s (2,080 m³/s) Dec. 4, 1975, gage height 24.54 ft (7,480 m); minimum, 518 ft³/s (14.7 m³/s) Nov. 29, 1952, gage height, 2.34 ft (0.713 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 16,000 ft³/s (453 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 4 | 0915 | *73,300 | 2,080 | *24.54 | 7.480 | Jan. 16 | 0945 | 24,100 | 683 | 15.88 | 4.840 |
| Dec. 27 | 0230 | 17,600 | 498 | 14.22 | 4.334 | May 10 | 1200 | 16,300 | 462 | 13.85 | 4.221 |

Minimum discharge, 1,190 ft³/s (33.7 m³/s) Oct. 2, gage height, 6.67 ft (2.033 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1220 | 5190 | 20200 | 8760 | 5790 | 3280 | 3260 | 8640 | 5510 | 6720 | 3500 | 2340 |
| 2 | 1200 | 5000 | 43400 | 7580 | 5570 | 3060 | 3090 | 13200 | 5060 | 6080 | 3250 | 2250 |
| 3 | 1310 | 7350 | 53300 | 6720 | 5370 | 2920 | 3010 | 13000 | 4710 | 5830 | 3440 | 2100 |
| 4 | 1680 | 8090 | 66800 | 6770 | 5050 | 2790 | 3090 | 11400 | 4510 | 6120 | 3280 | 2020 |
| 5 | 1570 | 7340 | 43100 | 7190 | 4570 | 2690 | 3500 | 10000 | 4440 | 6520 | 3110 | 1990 |
| 6 | 1650 | 7060 | 22600 | 6570 | 4360 | 2620 | 4390 | 9090 | 4610 | 7120 | 3240 | 1990 |
| 7 | 1440 | 6640 | 18100 | 6170 | 4150 | 2570 | 4810 | 9260 | 4990 | 7850 | 4290 | 1870 |
| 8 | 1320 | 5860 | 19000 | 6620 | 3960 | 2520 | 5640 | 11300 | 5980 | 9890 | 4580 | 1750 |
| 9 | 1290 | 5120 | 17900 | 6500 | 3770 | 2490 | 6900 | 14400 | 7150 | 9370 | 3670 | 1610 |
| 10 | 1530 | 4570 | 14300 | 6060 | 3550 | 2530 | 6740 | 16000 | 7990 | 7150 | 3340 | 1560 |
| 11 | 1420 | 4090 | 11500 | 6360 | 3420 | 2540 | 7580 | 15200 | 7680 | 6160 | 3170 | 1580 |
| 12 | 1310 | 3690 | 9450 | 6070 | 3640 | 2440 | 7600 | 12200 | 7300 | 5960 | 3110 | 1630 |
| 13 | 1250 | 3480 | 8220 | 5470 | 3730 | 2420 | 6720 | 12100 | 7070 | 5660 | 3010 | 1620 |
| 14 | 1220 | 4440 | 7080 | 6970 | 3670 | 2400 | 6000 | 12600 | 6220 | 5490 | 2880 | 1600 |
| 15 | 1410 | 11400 | 6470 | 15600 | 3510 | 2360 | 5600 | 11300 | 6240 | 5520 | 2890 | 1850 |
| 16 | 1520 | 11300 | 5910 | 23500 | 4060 | 2380 | 5020 | 10800 | 9000 | 5900 | 3290 | 1810 |
| 17 | 1560 | 8340 | 5320 | 20500 | 4530 | 2670 | 4550 | 11300 | 11000 | 6450 | 2880 | 1760 |
| 18 | 2020 | 6650 | 4870 | 16200 | 4780 | 3180 | 4230 | 9660 | 10700 | 6180 | 2670 | 1720 |
| 19 | 2140 | 5610 | 4570 | 12600 | 4480 | 3400 | 3970 | 8620 | 11300 | 5660 | 2510 | 1690 |
| 20 | 2980 | 4950 | 4280 | 10100 | 4140 | 3300 | 4300 | 7680 | 10700 | 5280 | 2720 | 1740 |
| 21 | 2630 | 4420 | 4040 | 8440 | 3840 | 3190 | 4350 | 7140 | 9230 | 5050 | 2830 | 1780 |
| 22 | 2520 | 4080 | 3990 | 7490 | 3660 | 3180 | 4190 | 7340 | 8220 | 4570 | 2620 | 1770 |
| 23 | 2250 | 4160 | 4130 | 6860 | 3600 | 3240 | 4000 | 7780 | 7100 | 4550 | 2480 | 1710 |
| 24 | 2060 | 4990 | 5250 | 6190 | 3640 | 3490 | 4120 | 7680 | 6310 | 4850 | 2480 | 1630 |
| 25 | 2110 | 7130 | 6370 | 5650 | 3740 | 3760 | 4250 | 7850 | 6170 | 4840 | 2650 | 1550 |
| 26 | 3070 | 8130 | 10800 | 5210 | 3630 | 3600 | 4050 | 7370 | 5650 | 4430 | 2680 | 1540 |
| 27 | 2900 | 8470 | 15700 | 6270 | 3660 | 3540 | 4000 | 8490 | 5400 | 4190 | 2380 | 1490 |
| 28 | 2720 | 7100 | 11700 | 7310 | 3610 | 3470 | 4280 | 8920 | 5910 | 3740 | 2240 | 1480 |
| 29 | 3380 | 5950 | 10900 | 7150 | 3460 | 3280 | 4620 | 7620 | 7500 | 3740 | 2200 | 1490 |
| 30 | 6500 | 6030 | 12400 | 6690 | --- | 3170 | 5890 | 6840 | 7460 | 3620 | 2200 | 1430 |
| 31 | 6530 | --- | 10600 | 6140 | --- | 3340 | --- | 6080 | --- | 3610 | 2270 | --- |
| TOTAL | 67710 | 186630 | 482250 | 265710 | 118940 | 91820 | 143750 | 310860 | 211110 | 178100 | 91860 | 52350 |
| MEAN | 2184 | 6221 | 15560 | 8571 | 4101 | 2962 | 4792 | 10030 | 7037 | 5745 | 2963 | 1745 |
| MAX | 6530 | 11400 | 66800 | 23500 | 5790 | 3760 | 7600 | 16000 | 11300 | 9890 | 4580 | 2340 |
| MIN | 1200 | 3480 | 3990 | 5210 | 3420 | 2360 | 3010 | 6080 | 4440 | 3610 | 2200 | 1430 |
| CFSM | 2.12 | 6.04 | 15.1 | 8.32 | 3.98 | 2.88 | 4.65 | 9.74 | 6.83 | 5.58 | 2.88 | 1.69 |
| IN. | 2.45 | 6.74 | 17.42 | 9.60 | 4.30 | 3.32 | 5.19 | 11.23 | 7.62 | 6.43 | 3.32 | 1.89 |
| AC-FT | 134300 | 370200 | 956500 | 527000 | 235900 | 182100 | 285100 | 616600 | 418700 | 353300 | 182200 | 103800 |

CAL YR 1975 TOTAL 2262110 MEAN 6198 MAX 66800 MIN 1200 CFSM 6.02 IN 81.70 AC-FT 4487000
WTR YR 1976 TOTAL 2201090 MEAN 6014 MAX 66800 MIN 1200 CFSM 5.84 IN 79.50 AC-FT 4366000

## 14233400 COWLITZ RIVER NEAR RANDLE, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: November 1952 to August 1968, April 1969 to current year.

INSTRUMENTATION.--Temperature recorder November 1952 to August 1968, April 1969 to current year.

REMARKS.--Interruptions in the record due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 18.5°C July 11, 12, 1958; minimum, 0.0°C Jan. 20, 1962, Dec. 9, 10, 1972.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 16.0°C Aug. 31; minimum, 1.5°C Feb. 5, 6.

WATER QUALITY DATA DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 19... | 0945 | 10200 | 43 | 6.8 | 4.7 | 4 | 12.0 | 190 |
| JAN , 1974 | | | | | | | | |
| 29... | 1315 | *13000 | -- | -- | 4.4 | -- | 12.1 | -- |
| FEB | | | | | | | | |
| 20... | 1400 | 4630 | 55 | 7.0 | 4.4 | 3 | 12.4 | 199 |
| JUN | | | | | | | | |
| 18... | 1420 | 21200 | 31 | 7.3 | 7.7 | 18 | 11.2 | 50 |
| OCT | | | | | | | | |
| 16... | 1200 | 1040 | 78 | 7.6 | 12.1 | 5 | 12.0 | >1600 |
| 29... | 1300 | 1060 | 79 | 7.2 | 8.3 | 5 | 11.4 | 200 |
| NOV | | | | | | | | |
| 13... | 1300 | 1270 | 76 | 7.7 | 8.8 | 2 | 12.2 | >610 |
| 19... | 1400 | 1680 | 75 | 7.6 | 5.7 | 5 | 12.2 | 640 |
| DEC | | | | | | | | |
| 10... | 1140 | 2690 | 65 | 7.0 | 6.0 | 2 | 12.2 | 150 |
| 10... | 1440 | 2730 | 60 | 7.0 | 6.2 | 1 | 12.4 | 5 |
| 17... | 1205 | 8010 | 45 | 7.2 | 5.4 | 20 | 12.4 | 400 |
| JAN , 1975 | | | | | | | | |
| 14... | 1225 | 16000 | 52 | 6.9 | 3.8 | 35 | 12.8 | 300 |
| 20... | 1500 | 15600 | -- | -- | 4.8 | -- | 12.1 | -- |
| 28... | 1205 | 9120 | 55 | 7.0 | 3.3 | 6 | 13.0 | 25 |
| FEB | | | | | | | | |
| 19... | 1150 | 4060 | 61 | 7.0 | 5.0 | 3 | 12.4 | 12 |
| 25... | 1205 | 4330 | 60 | 7.0 | 5.0 | 3 | 12.8 | 2 |
| MAR | | | | | | | | |
| 05... | 1320 | 8230 | 50 | 7.0 | 4.0 | 2 | 12.5 | 16 |
| 11... | 1130 | 4440 | 67 | 7.5 | 6.1 | 5 | 12.4 | 250 |
| 25... | 1055 | 3000 | 65 | 7.5 | 5.1 | 3 | 12.2 | 10 |
| APR | | | | | | | | |
| 15... | 1130 | 2610 | 67 | 7.4 | 7.2 | 4 | 12.3 | 250 |
| 29... | 1130 | 3030 | 62 | 7.5 | 7.1 | 1 | 12.4 | 50 |
| MAY | | | | | | | | |
| 07... | 1600 | 4370 | 41 | 7.8 | 7.4 | 0 | 11.8 | 3 |
| 13... | 1140 | 10600 | 57 | 7.8 | 7.9 | 8 | 11.8 | 120 |
| 27... | 1115 | 7280 | 46 | 7.4 | 8.0 | 4 | 12.1 | 45 |
| JUN | | | | | | | | |
| 10... | 1230 | 9400 | 41 | 7.3 | 8.8 | 6 | 11.8 | 45 |
| 24... | 1200 | 7940 | 27 | 7.5 | 8.9 | 6 | 11.5 | >260 |
| JUL | | | | | | | | |
| 15... | 1130 | 5550 | 47 | 7.3 | 12.7 | 20 | 10.7 | 120 |
| 29... | 1225 | 3780 | 42 | 7.4 | 10.9 | 40 | 11.4 | 280 |
| AUG | | | | | | | | |
| 06... | 1210 | 2620 | 49 | -- | 14.0 | 6 | 10.0 | 55 |
| 07... | 0900 | 2430 | 50 | 7.0 | 12.2 | 6 | 10.5 | 60 |
| 13... | 1155 | 2170 | 57 | 7.7 | 14.2 | 20 | 10.9 | 80 |
| SEP | | | | | | | | |
| 03... | 1210 | 2050 | 57 | 7.1 | 12.9 | 3 | 11.3 | 200 |
| 16... | 1145 | 1830 | 58 | 7.3 | 12.7 | 25 | 9.9 | <200 |
| NOV | | | | | | | | |
| 19... | 1410 | 5530 | 43 | 7.2 | 2.8 | 1 | 13.1 | 16 |
| FEB , 1976 | | | | | | | | |
| 18... | 1330 | 4780 | 50 | 7.3 | 3.6 | 2 | 12.5 | 23 |
| MAY | | | | | | | | |
| 18... | 1425 | 9480 | 37 | 7.4 | 6.6 | 3 | 12.0 | 46 |
| SEP | | | | | | | | |
| 21... | 1500 | 1800 | 50 | 7.0 | 12.5 | 10 | 10.2 | B50 |

* Mean daily discharge.
B Results based upon colony counts outside the ideal range.

## 14233400 COWLITZ RIVER NEAR RANDLE, WA--Continued

| DATE | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | |
| 19... | .05 | .01 | .06 | .04 | .14 | .09 | .01 |
| JAN , 1974 | | | | | | | |
| 29... | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | |
| 20... | .06 | .00 | .06 | .05 | .64 | .02 | .01 |
| JUN | | | | | | | |
| 18... | -- | -- | .03 | -- | -- | .18 | -- |
| OCT | | | | | | | |
| 16... | -- | -- | .03 | .08 | -- | .04 | .02 |
| 29... | -- | -- | .02 | .10 | -- | .05 | .02 |
| NOV | | | | | | | |
| 13... | -- | -- | .03 | .06 | -- | .03 | .02 |
| 19... | -- | -- | .02 | .04 | -- | .03 | .02 |
| DEC | | | | | | | |
| 10... | -- | -- | .03 | .04 | -- | .01 | .01 |
| 10... | -- | -- | .04 | -- | -- | .01 | -- |
| 17... | -- | -- | .04 | .08 | -- | .04 | .02 |
| JAN , 1975 | | | | | | | |
| 14... | -- | -- | .09 | .15 | -- | .18 | .00 |
| 20... | -- | -- | -- | -- | -- | -- | -- |
| 28... | -- | -- | .07 | .04 | -- | .03 | .01 |
| FEB | | | | | | | |
| 19... | -- | -- | .05 | .06 | -- | .01 | .01 |
| 25... | -- | -- | .09 | .04 | -- | .01 | .01 |
| MAR | | | | | | | |
| 05... | -- | -- | .05 | -- | -- | .03 | -- |
| 11... | -- | -- | .05 | .04 | -- | .02 | .01 |
| 25... | -- | -- | .05 | .08 | -- | .01 | .00 |
| APR | | | | | | | |
| 15... | -- | -- | .03 | .05 | -- | .02 | .01 |
| 29... | -- | -- | .03 | .05 | -- | .01 | .00 |
| MAY | | | | | | | |
| 07... | -- | -- | .04 | -- | -- | .01 | -- |
| 13... | -- | -- | .06 | .11 | -- | .05 | .02 |
| 27... | -- | -- | .02 | .03 | -- | .01 | .01 |
| JUN | | | | | | | |
| 10... | -- | -- | .04 | .06 | -- | .01 | .01 |
| 24... | -- | -- | .03 | .04 | -- | .04 | .01 |
| JUL | | | | | | | |
| 15... | -- | -- | .03 | .08 | -- | .05 | .01 |

| DATE | SUSPENDED SOLIDS (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) | SUSPENDED SEDIMENT (MG/L) | SUSPENDED SEDIMENT DISCHARGE (T/DAY) |
|---|---|---|---|---|---|---|---|
| JUL , 1975 | | | | | | | |
| 29... | -- | .02 | .20 | .10 | .01 | -- | -- |
| AUG | | | | | | | |
| 06... | -- | .02 | -- | .04 | -- | -- | -- |
| 07... | -- | .02 | -- | .01 | -- | -- | -- |
| 13... | -- | .01 | .13 | .05 | .02 | -- | -- |
| SEP | | | | | | | |
| 03... | -- | .02 | .04 | .01 | .01 | -- | -- |
| 16... | -- | .02 | .14 | .05 | .02 | -- | -- |
| NOV | | | | | | | |
| 19... | -- | .03 | -- | .02 | -- | -- | -- |
| FEB , 1976 | | | | | | | |
| 18... | -- | .05 | -- | .02 | -- | -- | -- |
| MAY | | | | | | | |
| 18... | -- | .03 | -- | .03 | -- | -- | -- |
| SEP | | | | | | | |
| 21... | 26 | .00 | -- | .06 | -- | 36 | 175 |

## 14233400 COWLITZ RIVER NEAR RANDLE, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 12.5 | 11.0 | 11.5 | 6.5 | 6.0 | 6.0 | 4.0 | 2.0 | 3.5 | 3.5 | 2.5 | 3.0 |
| 2 | 12.5 | 11.5 | 12.0 | 7.0 | 6.5 | 7.0 | 5.0 | 4.0 | 4.5 | 3.5 | 2.5 | 3.0 |
| 3 | 12.0 | 11.5 | 12.0 | 7.0 | 6.5 | 7.0 | 5.5 | 5.0 | 5.5 | 4.0 | 3.5 | 3.5 |
| 4 | 11.5 | 10.5 | 11.0 | 7.0 | 6.5 | 7.0 | 5.5 | 4.5 | 5.0 | 4.0 | 4.0 | 4.0 |
| 5 | 11.0 | 10.0 | 10.5 | 7.0 | 6.5 | 6.5 | 4.5 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 |
| 6 | 10.0 | 9.0 | 9.5 | 6.0 | 5.5 | 5.5 | 4.0 | 3.5 | 4.0 | 3.5 | 3.5 | 3.5 |
| 7 | 9.5 | 8.5 | 9.0 | 5.5 | 4.5 | 5.0 | 5.0 | 4.5 | 4.5 | 3.5 | 3.5 | 3.5 |
| 8 | 9.5 | 8.5 | 9.0 | 4.5 | 4.5 | 4.5 | 5.5 | 5.0 | 5.0 | 4.0 | 3.5 | 4.0 |
| 9 | 9.5 | 9.0 | 9.0 | 4.5 | 4.0 | 4.0 | 5.5 | 5.0 | 5.0 | 4.0 | 3.5 | 4.0 |
| 10 | 9.5 | 8.5 | 9.0 | 4.5 | 4.5 | 4.5 | 5.5 | 5.0 | 5.5 | 4.0 | 4.0 | 4.0 |
| 11 | 9.0 | 8.0 | 9.0 | 4.5 | 4.0 | 4.5 | 5.0 | 4.0 | 4.0 | 4.0 | 3.5 | 4.0 |
| 12 | 9.0 | 8.5 | 9.0 | 4.5 | 4.0 | 4.5 | 4.0 | 3.0 | 3.5 | 3.5 | 3.0 | 3.0 |
| 13 | 9.0 | 8.5 | 9.0 | 5.5 | 4.0 | 4.5 | 3.0 | 3.0 | 3.0 | 3.5 | 3.5 | 3.5 |
| 14 | 10.0 | 9.0 | 9.5 | 6.0 | 5.5 | 5.5 | 3.0 | 3.0 | 3.0 | 4.0 | 3.5 | 4.0 |
| 15 | 10.0 | 9.5 | 10.0 | 6.0 | 4.5 | 5.5 | 4.0 | 3.0 | 3.5 | 4.5 | 4.0 | 4.0 |
| 16 | 10.0 | 9.0 | 9.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 | 4.5 | 4.0 | 4.5 |
| 17 | 9.5 | 9.0 | 9.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | 5.0 | 4.5 | 4.5 |
| 18 | 9.5 | 8.5 | 9.0 | 4.0 | 3.0 | 3.5 | 3.5 | 3.5 | 3.5 | 5.0 | 4.5 | 4.5 |
| 19 | 9.0 | 8.5 | 8.5 | 3.0 | 2.5 | 3.0 | 4.0 | 3.5 | 3.5 | 4.5 | 4.0 | 4.0 |
| 20 | 8.0 | 7.5 | 8.0 | 3.5 | 3.0 | 3.5 | 3.5 | 3.5 | 3.5 | 4.0 | 4.0 | 4.0 |
| 21 | 8.0 | 7.0 | 7.5 | 4.5 | 3.5 | 4.0 | 3.5 | 3.0 | 3.5 | 4.0 | 3.5 | 4.0 |
| 22 | 7.0 | 6.5 | 7.0 | 5.0 | 4.5 | 4.5 | 4.5 | 3.5 | 4.0 | 4.5 | 4.0 | 4.0 |
| 23 | 7.0 | 6.0 | 6.5 | 5.0 | 4.5 | 5.0 | 4.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 |
| 24 | 6.0 | 5.5 | 6.0 | 6.0 | 5.0 | 5.5 | 5.0 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 |
| 25 | 6.5 | 6.0 | 6.0 | 6.0 | 5.0 | 5.5 | 4.5 | 4.0 | 4.5 | 4.0 | 3.5 | 4.0 |
| 26 | 6.0 | 6.0 | 6.0 | 5.5 | 5.0 | 5.5 | 5.5 | 4.5 | 5.0 | 4.5 | 3.5 | 4.0 |
| 27 | 6.5 | 6.0 | 6.0 | 5.0 | 4.5 | 4.5 | 4.5 | 4.0 | 4.0 | 5.0 | 4.5 | 5.0 |
| 28 | 6.0 | 6.0 | 6.0 | 4.0 | 3.0 | 3.5 | 5.0 | 4.0 | 4.5 | 5.0 | 5.0 | 5.0 |
| 29 | 6.0 | 6.0 | 6.0 | 3.0 | 2.0 | 2.5 | 5.0 | 5.0 | 5.0 | 5.0 | 4.0 | 4.5 |
| 30 | 6.5 | 6.0 | 6.0 | 2.5 | 2.0 | 2.0 | 5.0 | 3.5 | 4.0 | 4.5 | 3.5 | 4.0 |
| 31 | 6.5 | 6.0 | 6.0 | --- | --- | --- | 3.5 | 3.5 | 3.5 | 4.0 | 3.5 | 4.0 |
| MONTH | 12.5 | 5.5 | 8.5 | 7.0 | 2.0 | 5.0 | 5.5 | 2.0 | 4.0 | 5.0 | 2.5 | 4.0 |

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 4.0 | 4.0 | 4.0 | 4.5 | 3.5 | 4.0 | 5.0 | 4.0 | 4.5 | --- | --- | --- |
| 2 | 4.0 | 3.5 | 4.0 | 4.0 | 3.0 | 3.5 | 6.5 | 4.0 | 5.0 | --- | --- | --- |
| 3 | 4.0 | 4.0 | 4.0 | 4.0 | 2.5 | 3.5 | 8.0 | 5.5 | 6.5 | --- | --- | --- |
| 4 | 4.0 | 2.5 | 3.5 | 4.0 | 2.5 | 3.5 | 8.5 | 6.0 | 7.5 | --- | --- | --- |
| 5 | 2.5 | 1.5 | 1.5 | 4.0 | 2.5 | 3.5 | 8.0 | 6.5 | 7.5 | --- | --- | --- |
| 6 | 2.5 | 1.5 | 2.0 | 5.0 | 3.0 | 4.0 | 8.0 | 6.5 | 7.5 | --- | --- | --- |
| 7 | 3.0 | 2.0 | 2.5 | 5.5 | 4.0 | 4.5 | 7.0 | 6.0 | 6.5 | --- | --- | --- |
| 8 | 3.5 | 3.0 | 3.0 | 5.5 | 4.0 | 5.0 | 6.5 | 6.0 | 6.0 | --- | --- | --- |
| 9 | 3.5 | 3.5 | 3.5 | 6.0 | 4.0 | 5.0 | 7.0 | 5.0 | 6.0 | --- | --- | --- |
| 10 | 4.0 | 3.5 | 4.0 | 5.5 | 5.0 | 5.0 | 7.0 | 6.0 | 6.5 | --- | --- | --- |
| 11 | 4.0 | 3.5 | 3.5 | 5.5 | 4.0 | 5.0 | 7.0 | 6.0 | 6.5 | --- | --- | --- |
| 12 | 4.5 | 3.5 | 4.0 | 5.5 | 4.0 | 5.0 | 6.5 | 5.0 | 5.5 | --- | --- | --- |
| 13 | 5.0 | 4.5 | 4.5 | 6.0 | 4.5 | 5.0 | 6.0 | 5.5 | 6.0 | --- | --- | --- |
| 14 | 5.0 | 4.5 | 4.5 | 6.5 | 5.0 | 5.5 | 6.0 | 5.0 | 5.5 | --- | --- | --- |
| 15 | 4.5 | 4.0 | 4.5 | 6.5 | 5.0 | 6.0 | 5.0 | 4.5 | 4.5 | --- | --- | --- |
| 16 | 4.5 | 4.0 | 4.0 | 7.0 | 6.0 | 6.5 | 6.0 | 4.0 | 5.0 | --- | --- | --- |
| 17 | 4.0 | 3.5 | 4.0 | 7.0 | 6.0 | 6.5 | 6.0 | 5.5 | 5.5 | --- | --- | --- |
| 18 | 4.0 | 3.5 | 3.5 | 6.5 | 5.5 | 6.0 | 6.0 | 5.0 | 5.5 | --- | --- | --- |
| 19 | 4.0 | 3.5 | 3.5 | 5.0 | 4.5 | 4.5 | 7.0 | 5.5 | 6.5 | --- | --- | --- |
| 20 | 4.5 | 3.5 | 4.0 | 4.5 | 3.5 | 4.0 | 7.5 | 6.0 | 6.5 | --- | --- | --- |
| 21 | 4.5 | 4.0 | 4.5 | 5.5 | 3.5 | 4.5 | 7.5 | 5.5 | 6.5 | --- | --- | --- |
| 22 | 5.5 | 4.5 | 5.0 | 5.5 | 5.0 | 5.0 | 7.0 | 6.0 | 6.5 | --- | --- | --- |
| 23 | 5.5 | 5.0 | 5.0 | 5.0 | 4.0 | 4.5 | 6.0 | 5.5 | 6.0 | --- | --- | --- |
| 24 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 4.5 | 6.5 | 6.0 | 6.0 | --- | --- | --- |
| 25 | 4.5 | 4.0 | 4.0 | 4.5 | 3.5 | 4.0 | 7.0 | 5.5 | 6.0 | --- | --- | --- |
| 26 | 4.0 | 3.5 | 4.0 | 5.0 | 4.0 | 4.5 | 7.5 | 5.5 | 6.5 | --- | --- | --- |
| 27 | 3.5 | 3.0 | 3.5 | 4.5 | 4.0 | 4.5 | 8.0 | 6.5 | 7.5 | 9.0 | 7.0 | 8.0 |
| 28 | 3.5 | 2.5 | 3.0 | 5.0 | 4.5 | 4.5 | 7.5 | 7.0 | 7.5 | 7.0 | 6.0 | 6.5 |
| 29 | 4.5 | 3.0 | 3.5 | 6.0 | 4.5 | 5.5 | 9.0 | 7.0 | 8.0 | 6.5 | 6.0 | 6.0 |
| 30 | --- | --- | --- | 7.5 | 5.5 | 6.5 | --- | --- | --- | 6.5 | 6.0 | 6.5 |
| 31 | --- | --- | --- | 6.5 | 5.0 | 6.0 | --- | --- | --- | 7.0 | 6.5 | 6.5 |
| MONTH | 5.5 | 1.5 | 4.0 | 7.5 | 2.5 | 5.0 | 9.0 | 4.0 | 6.0 | --- | --- | --- |

## 14233400 COWLITZ RIVER NEAR RANDLE, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 7.0 | 6.5 | 7.0 | 9.0 | 8.0 | 8.5 | 13.5 | 12.5 | 13.0 | 15.5 | 13.5 | 14.5 |
| 2 | 9.0 | 7.0 | 7.5 | 10.5 | 8.5 | 9.5 | 13.0 | 12.0 | 12.5 | 14.5 | 12.5 | 13.5 |
| 3 | 9.0 | 7.0 | 8.0 | 10.5 | 9.0 | 10.0 | 13.5 | 11.5 | 12.5 | 14.5 | 12.0 | 13.5 |
| 4 | 9.0 | 8.0 | 8.5 | 10.0 | 9.0 | 9.5 | 13.0 | 12.0 | 13.0 | 15.0 | 12.5 | 13.5 |
| 5 | 9.5 | 8.0 | 9.0 | 11.0 | 10.0 | 10.5 | 13.0 | 11.5 | 12.0 | 14.0 | 12.0 | 13.0 |
| 6 | 9.5 | 8.5 | 9.0 | 11.5 | 11.0 | 11.0 | --- | --- | --- | 12.0 | 10.5 | 11.5 |
| 7 | 10.5 | 9.0 | 9.5 | 11.5 | 9.5 | 10.5 | --- | --- | --- | 12.0 | 10.0 | 11.0 |
| 8 | 10.0 | 8.0 | 9.0 | 9.5 | 9.0 | 9.5 | --- | --- | --- | 13.0 | 10.5 | 11.5 |
| 9 | 9.5 | 7.5 | 8.5 | 9.5 | 8.5 | 9.0 | --- | --- | --- | 13.0 | 10.5 | 12.0 |
| 10 | 9.5 | 8.5 | 9.0 | 9.0 | 8.5 | 9.0 | 14.0 | 12.0 | 13.0 | 13.5 | 11.0 | 12.5 |
| 11 | 8.5 | 7.0 | 7.5 | 9.5 | 9.0 | 9.0 | 15.0 | 13.0 | 14.0 | 13.5 | 11.5 | 12.0 |
| 12 | 8.0 | 7.0 | 7.5 | 9.5 | 9.0 | 9.5 | 15.5 | 13.5 | 14.5 | 12.0 | 11.5 | 12.0 |
| 13 | 8.0 | 7.0 | 7.5 | 11.5 | 9.0 | 10.0 | 14.5 | 12.0 | 13.5 | 12.5 | 11.0 | 12.0 |
| 14 | 9.5 | 7.0 | 8.0 | 12.0 | 11.0 | 11.5 | 12.5 | 11.5 | 12.0 | 12.5 | 11.5 | 12.0 |
| 15 | 9.5 | 8.0 | 9.0 | 12.5 | 11.0 | 12.0 | 12.0 | 10.5 | 11.5 | 12.5 | 10.5 | 11.5 |
| 16 | 8.5 | 7.5 | 8.0 | 13.0 | 12.0 | 12.5 | 10.5 | 10.5 | 10.5 | 13.0 | 11.5 | 12.0 |
| 17 | 10.0 | 7.5 | 8.5 | 13.0 | 11.5 | 12.0 | 12.5 | 10.0 | 11.0 | 13.0 | 12.0 | 12.5 |
| 18 | 10.0 | 8.5 | 9.5 | 12.5 | 11.5 | 12.0 | 13.0 | 10.5 | 12.0 | 13.5 | 11.5 | 12.5 |
| 19 | 10.0 | 8.5 | 9.5 | 12.0 | 11.5 | 12.0 | 12.5 | 11.0 | 11.5 | 14.0 | 12.0 | 13.0 |
| 20 | 9.5 | 8.0 | 8.5 | 12.5 | 11.5 | 12.0 | 12.5 | 10.5 | 11.5 | 14.5 | 12.5 | 13.5 |
| 21 | 9.5 | 8.5 | 9.0 | 12.0 | 11.5 | 12.0 | 14.0 | 12.0 | 13.0 | 14.0 | 12.5 | 13.0 |
| 22 | 9.0 | 7.5 | 8.0 | 13.0 | 11.0 | 12.0 | 13.5 | 12.0 | 13.0 | 12.5 | 11.5 | 12.0 |
| 23 | 8.0 | 7.5 | 7.5 | 13.5 | 12.0 | 13.0 | 14.5 | 12.0 | 13.0 | 12.0 | 11.0 | 11.5 |
| 24 | 9.0 | 7.5 | 8.5 | 14.0 | 13.0 | 13.5 | 15.0 | 13.0 | 14.0 | 13.0 | 11.0 | 12.0 |
| 25 | 9.0 | 8.0 | 8.5 | 14.0 | 13.0 | 13.5 | 13.5 | 12.0 | 13.0 | 13.5 | 11.5 | 12.5 |
| 26 | 10.0 | 7.5 | 8.5 | 13.5 | 12.5 | 13.0 | 12.5 | 11.0 | 12.0 | 13.5 | 11.5 | 12.5 |
| 27 | 11.0 | 9.5 | 10.0 | 13.0 | 12.0 | 12.5 | 12.5 | 11.0 | 11.5 | 13.5 | 12.0 | 13.0 |
| 28 | 11.5 | 10.0 | 11.0 | 13.5 | 11.5 | 13.0 | 13.5 | 11.0 | 12.5 | 13.5 | 12.5 | 13.0 |
| 29 | 11.5 | 9.0 | 10.0 | 13.5 | 11.5 | 12.5 | 15.0 | 12.0 | 13.5 | 13.5 | 12.0 | 13.0 |
| 30 | 9.5 | 8.5 | 9.0 | 12.5 | 11.0 | 12.0 | 15.0 | 12.5 | 14.0 | 14.0 | 12.5 | 13.0 |
| 31 | --- | --- | --- | 14.0 | 12.0 | 13.5 | 16.0 | 13.5 | 14.5 | --- | --- | --- |
| MONTH | 11.5 | 6.5 | 8.5 | 14.0 | 8.0 | 11.5 | 16.0 | 10.0 | 12.5 | 15.5 | 10.0 | 12.5 |
| YEAR | 16.0 | 1.5 | 7.5 | | | | | | | | | |

## 14234800 RIFFE LAKE NEAR MOSSYROCK, WA
(formerly Davisson Lake, WA)

LOCATION.--Lat 46°32'07", long 122°25'25", in SE¼SW¼ sec.10, T.12 N., R.3 E., Lewis County, Hydrologic Unit 17080005, in emergency generator room on top of Mossyrock Dam on Cowlitz River, 2.8 mi (4.5 km) east of Mossyrock and at mile 65.5 (105.4 km).

DRAINAGE AREA.--1,154 mi$^2$ (2,989 km$^2$).

### MONTHEND CONTENTS

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder; nonrecording gage prior to July 25, 1968. Datum of gage is at mean sea level (levels by city of Tacoma).

REVISED RECORDS.--WRD Wash. 1974: 1973.

REMARKS.--Reservoir is formed by concrete arch dam, completed in April 1968; storage began Apr. 3, 1968. Usable capacity, 1,297,400 acre-ft (1,600 hm$^3$) between elevations 600 ft (182.9 m), minimum operating level, and 770 ft (234.7 m), normal operating pool Dead storage below elevation 600 ft (182.9 m), 288,900 acre-ft (356 hm$^3$). Crest of spillway is at elevation 728.5 ft (222.05 m). Water used by city of Tacoma for power development. Elevation records collected in cooperation with city of Tacoma. Figures given herein represent total contents. Capacity table furnished by city of Tacoma.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents 1,686,300 acre-ft (2,080 hm$^3$) July 31, 1972, elevation, 778.63 ft (237.326 m); minimum since normal low operating level was attained, 891,000 acre-ft (1,100 hm$^3$) Mar. 21, 22, 23, 1969, elevation, 697.5 ft (212.60 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,682,746 acre-ft (2,070 hm$^3$) July 9, elevation, 778.33 ft 237.235 m); minimum, 918,910 acre-ft (1,130 hm$^3$) Apr. 6, elevation, 700.89 ft (213.631 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 771.61 | 1,604,613 | - |
| Oct. 31 | 761.72 | 1,494,802 | -109,811 |
| Nov. 30 | 753.29 | 1,405,728 | -89,074 |
| Dec. 31 | 746.51 | 1,336,666 | -69,062 |
| CAL YR 1975 | - | - | +4,611 |
| Jan. 31 | 747.90 | 1,350,656 | +13,990 |
| Feb. 29 | 732.82 | 1,203,277 | -147,379 |
| Mar. 31 | 703.72 | 942,617 | -260,660 |
| Apr. 30 | 715.17 | 1,041,602 | +98,985 |
| May 31 | 759.31 | 1,468,935 | +427,333 |
| June 30 | 775.22 | 1,646,271 | +177,336 |
| July 31 | 774.34 | 1,636,047 | -10,224 |
| Aug. 31 | 776.94 | 1,666,380 | +30,333 |
| Sept. 30 | 772.06 | 1,609,764 | -56,616 |
| WTR YR 1976 | - | - | +5,151 |

## 14234800 RIFFE LAKE NEAR MOSSYROCK, WA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 18... | 1425 | 1.0 | 48 | 7.2 | 8.5 | 1 | 11.3 | 15 |
| 18... | 1428 | 20 | 48 | 7.3 | 8.5 | 1 | 10.8 | 15 |
| 18... | 1430 | 50 | 48 | 7.4 | 8.5 | 1 | 10.8 | 9 |
| 18... | 1432 | 100 | 48 | 7.4 | 8.5 | 1 | 10.8 | 14 |
| 18... | 1435 | 312 | 47 | 7.4 | 7.2 | 20 | 11.4 | 2 |
| JAN , 1974 | | | | | | | | |
| 29... | 1205 | 1.0 | -- | -- | 4.7 | -- | 12.6 | -- |
| FEB | | | | | | | | |
| 20... | 1310 | 1.0 | 45 | 7.0 | 5.4 | 5 | 12.3 | 250 |
| 20... | 1315 | 20 | 44 | 7.0 | 5.2 | 8 | 12.3 | 4 |
| 20... | 1320 | 50 | 43 | 7.1 | 5.2 | 5 | 12.2 | 76 |
| 20... | 1325 | 100 | 45 | 7.1 | 5.2 | 5 | 12.3 | 249 |
| 20... | 1330 | 320 | 37 | 7.0 | 4.5 | 55 | 11.3 | 25 |
| JUN | | | | | | | | |
| 18... | 1430 | 1.0 | 50 | 7.8 | 16.8 | 2 | 10.6 | <1 |
| 18... | 1435 | 20 | 45 | 7.6 | 13.8 | 1 | 10.8 | <1 |
| 18... | 1440 | 50 | 46 | 7.4 | 10.6 | 1 | 10.4 | <1 |
| 18... | 1445 | 100 | 52 | 7.2 | 9.2 | 1 | 10.6 | <1 |
| 18... | 1450 | 300 | 55 | 7.2 | 6.5 | 3 | 10.6 | <1 |
| DEC | | | | | | | | |
| 10... | 1315 | 1.0 | 48 | 7.5 | 9.7 | 1 | 10.4 | 16 |
| 10... | 1320 | 20 | 102 | 7.5 | 9.8 | 1 | 10.2 | 9 |
| 10... | 1325 | 50 | 220 | 7.7 | 9.8 | 1 | 10.1 | 12 |
| 10... | 1330 | 100 | 200 | 7.5 | 9.8 | 1 | 10.1 | 4 |
| JAN , 1975 | | | | | | | | |
| 21... | 1010 | 1.0 | -- | -- | 6.5 | -- | 11.3 | -- |
| MAR | | | | | | | | |
| 05... | 1230 | 1.0 | 48 | 6.7 | 5.3 | 1 | 12.1 | <1 |
| 05... | 1235 | 20 | 48 | 7.0 | 5.1 | 1 | 12.0 | <1 |
| 05... | 1240 | 50 | 48 | 7.1 | 5.1 | 1 | 11.9 | <1 |
| 05... | 1245 | 100 | 48 | 7.0 | 5.0 | 1 | 12.0 | <1 |
| MAY | | | | | | | | |
| 07... | 1315 | 1.0 | 44 | 7.6 | 9.5 | 1 | 12.1 | <1 |
| 07... | 1320 | 20 | 43 | 7.8 | 8.1 | 1 | 12.2 | <1 |
| 07... | 1325 | 50 | 43 | 7.4 | 7.4 | 1 | 11.8 | 2 |
| 07... | 1330 | 100 | 44 | 7.4 | 6.9 | 1 | 12.0 | <1 |
| AUG | | | | | | | | |
| 06... | 1025 | 1.0 | 48 | -- | 17.3 | 1 | 9.2 | <1 |
| 06... | 1030 | 20 | 50 | -- | 17.3 | 1 | 9.2 | <1 |
| 06... | 1035 | 50 | 38 | -- | 15.5 | 2 | 9.4 | <1 |

## 14234800 RIFFE LAKE NEAR MOSSYROCK, WA--Continued

### WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | |
| 18... | .04 | .01 | .05 | .02 | .15 | .01 | .00 |
| 18... | .04 | .01 | .05 | .02 | .04 | .01 | .00 |
| 18... | .05 | .01 | .06 | .02 | .06 | .01 | .00 |
| 18... | .04 | .01 | .05 | .02 | .07 | .01 | .00 |
| 18... | .04 | .01 | .05 | .04 | .13 | .05 | .01 |
| JAN , 1974 | | | | | | | |
| 29... | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | |
| 20... | .11 | .00 | .11 | .14 | .17 | .03 | .02 |
| 20... | .11 | .00 | .11 | .10 | .15 | .03 | .02 |
| 20... | .11 | .01 | .12 | .11 | .73 | .06 | .02 |
| 20... | .13 | .00 | .13 | .12 | .58 | .03 | .02 |
| 20... | .08 | .03 | .11 | .64 | .41 | .52 | .10 |
| JUN | | | | | | | |
| 18... | .01 | .00 | .01 | .03 | .18 | .76 | .76 |
| 18... | .01 | .00 | .01 | .03 | .10 | .02 | .00 |
| 18... | .01 | .00 | .01 | .02 | .09 | .05 | .00 |
| 18... | .00 | .01 | .01 | .03 | .38 | .83 | .80 |
| 18... | .09 | .00 | .09 | .05 | .05 | .02 | .01 |
| DEC | | | | | | | |
| 10... | -- | -- | .04 | -- | -- | .01 | -- |
| 10... | -- | -- | .05 | -- | -- | .01 | -- |
| 10... | -- | -- | .05 | -- | -- | .01 | -- |
| 10... | -- | -- | .21 | -- | -- | .01 | -- |
| JAN , 1975 | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | |
| 05... | -- | -- | .09 | -- | -- | .01 | -- |
| 05... | -- | -- | .09 | -- | -- | .01 | -- |
| 05... | -- | -- | .09 | -- | -- | .01 | -- |
| 05... | -- | -- | .09 | -- | -- | .01 | -- |
| MAY | | | | | | | |
| 07... | -- | -- | .00 | -- | -- | .01 | -- |
| 07... | -- | -- | .02 | -- | -- | .01 | -- |
| 07... | -- | -- | .04 | -- | -- | .01 | -- |
| 07... | -- | -- | .07 | -- | -- | .02 | -- |
| AUG | | | | | | | |
| 06... | -- | -- | .02 | -- | -- | .01 | -- |
| 06... | -- | -- | .00 | -- | -- | .01 | -- |
| 06... | -- | -- | .01 | -- | -- | .01 | -- |

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | DIS-SOLVED OXYGEN (MG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| AUG , 1975 | | | | | | | | | | |
| 06... | 1040 | 100 | 41 | -- | 11.5 | 1 | 11.5 | <1 | .02 | .01 |
| 07... | 1100 | 1.0 | 39 | -- | 17.1 | 1 | 9.8 | <1 | .00 | .01 |
| 07... | 1105 | 20 | 39 | -- | 17.0 | 1 | 9.5 | <1 | .00 | .01 |
| 07... | 1110 | 50 | 38 | -- | 15.1 | 2 | 9.2 | <1 | .02 | .01 |
| 07... | 1115 | 100 | 39 | -- | 12.2 | 2 | 10.0 | 18 | .02 | .01 |
| NOV | | | | | | | | | | |
| 19... | 1010 | 3.0 | 37 | 6.6 | 7.6 | 1 | 10.7 | 64 | .02 | .01 |
| DEC | | | | | | | | | | |
| 02... | 1203 | 1.0 | -- | -- | 9.5 | 1 | 10.6 | -- | -- | -- |
| FEB , 1976 | | | | | | | | | | |
| 18... | 1140 | 1.0 | 40 | 7.3 | 5.1 | 5 | 11.9 | <1 | .09 | .03 |
| 18... | 1150 | 20 | 42 | 7.2 | 4.9 | 5 | 11.9 | <1 | .09 | .02 |
| 18... | 1200 | 50 | 42 | 7.0 | 4.8 | 6 | 11.9 | <1 | .09 | .02 |
| 18... | 1210 | 100 | 44 | 7.1 | 4.6 | 5 | 11.9 | 3 | .09 | .02 |
| MAY | | | | | | | | | | |
| 18... | 1410 | 1.0 | 50 | 7.0 | 12.4 | 2 | 11.8 | <1 | .01 | .02 |
| 18... | 1420 | 20 | 48 | 7.0 | 10.6 | 2 | 12.0 | 2 | .03 | .01 |
| 18... | 1430 | 50 | 46 | 7.0 | 9.9 | 2 | 11.8 | 2 | .10 | .01 |
| 18... | 1440 | 100 | 52 | 7.0 | 7.7 | 2 | 11.6 | -- | .10 | .01 |
| SEP | | | | | | | | | | |
| 21... | 1440 | 1.0 | 36 | 7.4 | 17.3 | 0 | 9.4 | 2700 | .00 | .01 |
| 21... | 1450 | 20 | 36 | 7.6 | 17.2 | 0 | 9.3 | 6900 | .00 | .01 |
| 21... | 1500 | 50 | 38 | 7.4 | 15.1 | 1 | 9.1 | 3900 | .00 | .01 |
| 21... | 1510 | 100 | 36 | 7.3 | 12.2 | 1 | 9.5 | 2900 | .00 | .01 |

## 14234810 COWLITZ RIVER BELOW MOSSYROCK DAM, WA

LOCATION.--Lat 46°32'10", long 122°25'45", in SE¼SE¼ in sec.9, T.12 N., R.3 E., Lewis County, Hydrologic Unit 17080005, on left bank 0.2 mi (0.3 km) downstream from Mossyrock Dam and 2.6 mi (4.2 km) east from town of Mossyrock.

DRAINAGE AREA.--1,154 $mi^2$ (2,989 $km^2$) at Mossyrock Dam.

PERIOD OF RECORD.--Water years 1970 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1970 to current year.

INSTRUMENTATION.--Temperature recorder since July 1970.

REMARKS.-Record lost Oct. 2-Feb. 11 due to loss of gage during high water.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 13.0°C June 17, 1974; minimum, 3.5°C Feb. 9, 10, 25, 1972.

EXTREMES FOR CURRENT YEAR:
WATER TEMPERATURE: Maximum recorded, 10.0°C Oct. 1; minimum recorded, 4.5°C Feb. 16-21, Feb. 26 to Mar. 16.

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 10.0 | 10.0 | 10.0 | | | | | | | | | |
| 2 | --- | --- | --- | | | | | | | | | |
| 3 | --- | --- | --- | | | | | | | | | |
| 4 | --- | --- | --- | | | | | | | | | |
| 5 | --- | --- | --- | | | | | | | | | |
| 6 | --- | --- | --- | | | | | | | | | |
| 7 | --- | --- | --- | | | | | | | | | |
| 8 | --- | --- | --- | | | | | | | | | |
| 9 | --- | --- | --- | | | | | | | | | |
| 10 | --- | --- | --- | | | | | | | | | |
| 11 | --- | --- | --- | | | | | | | | | |
| 12 | --- | --- | --- | | | | | | | | | |
| 13 | --- | --- | --- | | | | | | | | | |
| 14 | --- | --- | --- | | | | | | | | | |
| 15 | --- | --- | --- | | | | | | | | | |
| 16 | --- | --- | --- | | | | | | | | | |
| 17 | --- | --- | --- | | | | | | | | | |
| 18 | --- | --- | --- | | | | | | | | | |
| 19 | --- | --- | --- | | | | | | | | | |
| 20 | --- | --- | --- | | | | | | | | | |
| 21 | --- | --- | --- | | | | | | | | | |
| 22 | --- | --- | --- | | | | | | | | | |
| 23 | --- | --- | --- | | | | | | | | | |
| 24 | --- | --- | --- | | | | | | | | | |
| 25 | --- | --- | --- | | | | | | | | | |
| 26 | --- | --- | --- | | | | | | | | | |
| 27 | --- | --- | --- | | | | | | | | | |
| 28 | --- | --- | --- | | | | | | | | | |
| 29 | --- | --- | --- | | | | | | | | | |
| 30 | --- | --- | --- | | | | | | | | | |
| 31 | --- | --- | --- | | | | | | | | | |
| MONTH | --- | --- | --- | | | | | | | | | |

## 14234810 COWLITZ RIVER BELOW MOSSYROCK DAM, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.0 |
| 2 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.0 |
| 3 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 5.5 | 5.0 | 5.0 | 6.0 | 5.5 | 6.0 |
| 4 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 5.5 | 5.0 | 5.0 | 6.5 | 6.0 | 6.0 |
| 5 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 5.5 | 5.5 | 5.5 | 6.5 | 6.0 | 6.0 |
| 6 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 5.5 | 5.0 | 5.5 | 7.0 | 6.0 | 6.0 |
| 7 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 6.0 | 5.5 | 5.5 | 6.5 | 6.0 | 6.0 |
| 8 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 6.0 | 5.5 | 5.5 | 7.5 | 6.0 | 6.5 |
| 9 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 6.0 | 5.5 | 6.0 | 7.5 | 6.0 | 7.0 |
| 10 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 6.0 | 5.5 | 6.0 | 6.5 | 6.0 | 6.0 |
| 11 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 6.0 | 5.5 | 5.5 | 7.0 | 6.0 | 6.0 |
| 12 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 | 4.5 | 6.0 | 5.5 | 5.5 | 6.0 | 6.0 | 6.0 |
| 13 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 | 4.5 | 5.5 | 5.5 | 5.5 | 6.5 | 6.0 | 6.0 |
| 14 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 | 4.5 | 5.5 | 5.5 | 5.5 | 7.0 | 6.0 | 6.5 |
| 15 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 | 4.5 | 5.5 | 5.0 | 5.5 | 7.5 | 6.0 | 6.5 |
| 16 | 5.0 | 4.5 | 5.0 | 5.0 | 4.5 | 5.0 | 5.5 | 5.5 | 5.5 | 7.0 | 6.5 | 6.5 |
| 17 | 4.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 6.5 | 6.0 | 6.0 |
| 18 | 4.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 | 6.0 | 5.5 | 5.5 | 7.0 | 6.0 | 6.5 |
| 19 | 4.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 | 6.0 | 5.5 | 5.5 | 6.5 | 6.5 | 6.5 |
| 20 | 4.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 6.5 | 6.0 | 6.5 |
| 21 | 5.0 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 | 5.5 | 5.0 | 5.5 | 6.5 | 6.0 | 6.5 |
| 22 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 6.5 | 6.0 | 6.5 |
| 23 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 6.0 | 5.5 | 5.5 | 6.5 | 6.0 | 6.5 |
| 24 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 6.0 | 5.5 | 6.0 | 7.0 | 6.5 | 6.5 |
| 25 | 5.0 | 4.5 | 5.0 | 5.0 | 5.0 | 5.0 | 6.5 | 5.5 | 6.0 | 7.0 | 6.5 | 6.5 |
| 26 | 4.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 7.0 | 6.5 | 6.5 |
| 27 | 4.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 | 6.0 | 5.5 | 5.5 | 7.0 | 6.5 | 6.5 |
| 28 | 4.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 | 7.0 | 5.5 | 6.0 | 6.5 | 6.5 | 6.5 |
| 29 | 4.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.0 | 7.0 | 6.5 | 7.0 |
| 30 | --- | --- | --- | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.0 | 6.5 | 6.5 | 6.5 |
| 31 | --- | --- | --- | 5.0 | 5.0 | 5.0 | --- | --- | --- | 7.0 | 6.5 | 6.5 |
| MONTH | --- | --- | --- | 5.0 | 4.5 | 5.0 | 7.0 | 5.0 | 5.5 | 7.5 | 5.5 | 6.5 |

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 7.0 | 6.5 | 7.0 | 8.0 | 7.5 | 7.5 | 8.5 | 8.0 | 8.5 | 9.0 | 9.0 | 9.0 |
| 2 | 7.0 | 6.5 | 7.0 | 7.5 | 7.0 | 7.5 | 9.0 | 8.5 | 8.5 | 9.5 | 9.0 | 9.0 |
| 3 | 7.0 | 6.5 | 6.5 | 7.5 | 7.5 | 7.5 | 9.0 | 8.5 | 8.5 | 9.0 | 9.0 | 9.0 |
| 4 | 7.0 | 6.5 | 7.0 | 8.0 | 7.5 | 7.5 | 8.5 | 8.5 | 8.5 | 9.0 | 9.0 | 9.0 |
| 5 | 7.0 | 7.0 | 7.0 | 7.5 | 7.5 | 7.5 | 8.5 | 8.5 | 8.5 | 9.0 | 9.0 | 9.0 |
| 6 | 7.0 | 6.5 | 7.0 | 7.5 | 7.0 | 7.5 | 9.0 | 8.5 | 8.5 | 9.0 | 9.0 | 9.0 |
| 7 | 7.0 | 6.5 | 6.5 | 7.5 | 7.5 | 7.5 | 9.0 | 8.5 | 9.0 | 9.0 | 9.0 | 9.0 |
| 8 | 7.0 | 6.5 | 7.0 | 7.5 | 7.5 | 7.5 | 9.0 | 8.5 | 8.5 | 9.0 | 9.0 | 9.0 |
| 9 | 7.5 | 7.0 | 7.0 | 8.0 | 7.5 | 8.0 | 9.0 | 8.5 | 8.5 | 9.0 | 9.0 | 9.0 |
| 10 | 7.0 | 7.0 | 7.0 | 8.0 | 8.0 | 8.0 | 9.0 | 8.5 | 8.5 | 9.5 | 9.0 | 9.0 |
| 11 | 7.0 | 6.5 | 7.0 | 8.0 | 7.5 | 7.5 | 9.0 | 8.5 | 8.5 | 9.0 | 9.0 | 9.0 |
| 12 | 7.0 | 7.0 | 7.0 | 8.0 | 7.5 | 8.0 | 9.0 | 8.5 | 8.5 | 9.5 | 9.0 | 9.0 |
| 13 | 7.0 | 7.0 | 7.0 | 8.5 | 7.5 | 8.0 | 9.0 | 8.5 | 8.5 | 9.5 | 9.0 | 9.0 |
| 14 | 7.0 | 6.5 | 7.0 | 8.0 | 8.0 | 8.0 | 8.5 | 8.5 | 8.5 | 9.5 | 9.0 | 9.5 |
| 15 | 7.0 | 6.5 | 7.0 | 8.0 | 8.0 | 8.0 | 9.0 | 8.5 | 9.0 | 9.5 | 9.0 | 9.5 |
| 16 | 7.0 | 7.0 | 7.0 | 8.5 | 8.0 | 8.0 | 9.0 | 8.5 | 9.0 | 9.5 | 9.0 | 9.0 |
| 17 | 8.0 | 7.0 | 7.0 | 8.5 | 8.0 | 8.0 | 9.0 | 8.5 | 8.5 | 9.5 | 9.0 | 9.5 |
| 18 | 7.0 | 7.0 | 7.0 | 8.5 | 8.0 | 8.0 | 9.0 | 8.5 | 9.0 | 9.5 | 9.0 | 9.5 |
| 19 | 7.0 | 7.0 | 7.0 | 8.5 | 8.0 | 8.0 | 9.0 | 8.5 | 9.0 | 9.5 | 9.0 | 9.0 |
| 20 | 7.5 | 7.0 | 7.0 | 8.5 | 8.0 | 8.0 | 9.0 | 8.5 | 8.5 | 9.5 | 9.0 | 9.5 |
| 21 | 7.5 | 7.0 | 7.0 | 8.5 | 8.0 | 8.5 | 9.0 | 8.5 | 9.0 | 9.5 | 9.5 | 9.5 |
| 22 | 7.5 | 7.0 | 7.0 | 8.5 | 8.0 | 8.0 | 9.0 | 8.5 | 9.0 | 9.5 | 9.0 | 9.5 |
| 23 | 7.5 | 7.0 | 7.5 | 8.5 | 8.0 | 8.0 | 9.0 | 9.0 | 9.0 | 9.5 | 9.0 | 9.5 |
| 24 | 8.0 | 7.0 | 7.5 | 8.5 | 8.0 | 8.0 | 9.0 | 9.0 | 9.0 | 9.5 | 9.5 | 9.5 |
| 25 | 7.5 | 7.0 | 7.5 | 8.5 | 8.0 | 8.5 | 9.0 | 9.0 | 9.0 | 9.5 | 9.5 | 9.5 |
| 26 | 8.0 | 7.5 | 7.5 | 8.5 | 8.0 | 8.5 | 9.0 | 8.5 | 9.0 | 9.5 | 9.5 | 9.5 |
| 27 | 7.5 | 7.5 | 7.5 | 8.5 | 8.5 | 8.5 | 9.0 | 8.5 | 9.0 | 9.5 | 9.5 | 9.5 |
| 28 | 7.5 | 7.5 | 7.5 | 8.5 | 8.5 | 8.5 | 9.0 | 9.0 | 9.0 | 9.5 | 9.0 | 9.5 |
| 29 | 8.0 | 7.5 | 7.5 | 8.5 | 8.5 | 8.5 | 9.0 | 9.0 | 9.0 | 9.5 | 9.0 | 9.5 |
| 30 | 7.5 | 7.5 | 7.5 | 8.5 | 8.0 | 8.0 | 9.0 | 9.0 | 9.0 | 9.5 | 9.5 | 9.5 |
| 31 | --- | --- | --- | 8.5 | 8.0 | 8.5 | 9.0 | 9.0 | 9.0 | --- | --- | --- |
| MONTH | 8.0 | 6.5 | 7.0 | 8.5 | 7.0 | 8.0 | 9.0 | 8.0 | 9.0 | 9.5 | 9.0 | 9.5 |
| YEAR | 10.0 | 4.5 | 7.0 | | | | | | | | | |

## 14236200 TILTON RIVER ABOVE BEAR CANYON CREEK, NEAR CINEBAR, WA

LOCATION.--Lat 46°35'44", long 122°27'30", in NE¼SW¼ sec.20, T.13 N., R.3 E., Lewis County, Hydrologic Unit 17080005, on right bank 0.9 mi (1.4 km) upstream from Bear Canyon Creek, 3.5 mi (5.6 km) southeast of Cinebar, and at mile 7.1 (11.4 km).

DRAINAGE AREA.--141 mi² (365 km²).

### WATER DISCHARGE RECORDS

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WRD Wash. 1972: 1957(M), 1959(P), 1960(P), 1961(M), 1963(P), 1964(M), 1965, 1967(P), 1971(P).

GAGE.--Water-stage recorder. Altitude of gage is 600 ft (183 m), from topographic map.

REMARKS.--Records excellent. Several small diversions for municipal and domestic use above station. No regulation.

AVERAGE DISCHARGE.--20 years, 875 ft³/s (24.78 m³/s) 84.27 in/yr (2,140 mm/yr), 633,900 acre-ft/yr (782 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,600 ft³/s (498 m³/s) Jan. 20, 1972, Dec. 1, 1975, from rating curve extended above 10,500 ft³/s (297 m³/s) on basis of slope-area measurement of peak flow; maximum gage height, 14.79 ft (4.508 m) Jan. 20, 1972; minimum, 52 ft³/s (1.47 m³/s), Sept. 27-29, 1967; minimum gage height, 1.96 ft (0.597 m) Aug. 31, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,200 ft³/s (176 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 29 | 2300 | 6,360 | 180 | 8.54 | 2.603 | Jan. 15 | 0900 | 13,800 | 391 | 12.88 | 3.926 |
| Dec. 1 | 2345 | *17,600 | 498 | *14.78 | 4.505 | | | | | | |

Minimum discharge, 82 ft³/s (2.32 m³/s) Oct. 2, gage height, 2.31 ft (0.704 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 84 | 1780 | 12800 | 1620 | 855 | 796 | 1020 | 1760 | 585 | 208 | 105 | 152 |
| 2 | 83 | 1770 | 12900 | 1320 | 784 | 712 | 897 | 2520 | 550 | 199 | 103 | 147 |
| 3 | 124 | 1960 | 11700 | 1130 | 718 | 646 | 841 | 1660 | 490 | 187 | 103 | 140 |
| 4 | 219 | 1500 | 9960 | 1220 | 652 | 600 | 897 | 1320 | 440 | 190 | 99 | 135 |
| 5 | 198 | 1180 | 4840 | 3390 | 590 | 560 | 1090 | 1170 | 404 | 179 | 101 | 137 |
| 6 | 320 | 1220 | 2960 | 2740 | 550 | 535 | 1260 | 1060 | 386 | 170 | 105 | 152 |
| 7 | 213 | 1880 | 3810 | 2030 | 515 | 520 | 1240 | 1120 | 372 | 182 | 256 | 140 |
| 8 | 201 | 1780 | 4490 | 2160 | 495 | 495 | 1470 | 1260 | 363 | 495 | 359 | 130 |
| 9 | 238 | 1460 | 3120 | 2760 | 485 | 500 | 1480 | 1310 | 350 | 338 | 212 | 121 |
| 10 | 262 | 1210 | 2220 | 2400 | 460 | 575 | 1330 | 1290 | 334 | 278 | 173 | 114 |
| 11 | 226 | 1030 | 1690 | 2800 | 480 | 605 | 1960 | 1150 | 330 | 248 | 152 | 112 |
| 12 | 200 | 909 | 1370 | 2500 | 1260 | 550 | 1580 | 918 | 377 | 231 | 140 | 125 |
| 13 | 183 | 859 | 1170 | 2300 | 1100 | 535 | 1250 | 876 | 359 | 215 | 135 | 123 |
| 14 | 175 | 2130 | 1000 | 5000 | 988 | 525 | 1090 | 808 | 318 | 196 | 142 | 163 |
| 15 | 285 | 3040 | 1130 | 12000 | 890 | 510 | 1120 | 700 | 334 | 185 | 190 | 187 |
| 16 | 259 | 2080 | 1060 | 6900 | 2450 | 530 | 964 | 670 | 610 | 173 | 248 | 152 |
| 17 | 318 | 1510 | 939 | 4420 | 2560 | 766 | 895 | 658 | 545 | 165 | 208 | 137 |
| 18 | 549 | 1180 | 869 | 3090 | 2360 | 1320 | 877 | 575 | 465 | 160 | 224 | 130 |
| 19 | 811 | 989 | 862 | 2220 | 1710 | 1250 | 849 | 520 | 413 | 152 | 199 | 125 |
| 20 | 803 | 849 | 848 | 1710 | 1340 | 1070 | 1360 | 485 | 368 | 147 | 259 | 119 |
| 21 | 689 | 752 | 802 | 1410 | 1100 | 974 | 1270 | 450 | 330 | 142 | 241 | 112 |
| 22 | 616 | 732 | 911 | 1320 | 981 | 1270 | 1080 | 436 | 302 | 137 | 212 | 112 |
| 23 | 507 | 2090 | 1250 | 1230 | 1050 | 1300 | 970 | 422 | 282 | 133 | 196 | 114 |
| 24 | 426 | 2280 | 2930 | 1060 | 1090 | 1760 | 1310 | 445 | 274 | 128 | 182 | 112 |
| 25 | 806 | 1870 | 2560 | 939 | 1140 | 1760 | 1230 | 520 | 256 | 123 | 221 | 108 |
| 26 | 1500 | 2730 | 4720 | 841 | 1050 | 1430 | 1050 | 445 | 238 | 121 | 263 | 103 |
| 27 | 1340 | 2390 | 3640 | 1700 | 1110 | 1320 | 983 | 475 | 224 | 119 | 218 | 99 |
| 28 | 1450 | 1740 | 2360 | 1560 | 1070 | 1280 | 1020 | 450 | 212 | 114 | 199 | 97 |
| 29 | 4120 | 1340 | 2150 | 1320 | 911 | 1100 | 1100 | 440 | 205 | 110 | 185 | 97 |
| 30 | 5440 | 3370 | 2790 | 1090 | --- | 1030 | 1400 | 530 | 202 | 110 | 170 | 95 |
| 31 | 2740 | --- | 2120 | 946 | --- | 1170 | --- | 530 | --- | 108 | 160 | --- |
| TOTAL | 25385 | 49610 | 105971 | 77126 | 30744 | 27994 | 34883 | 26973 | 10918 | 5643 | 5760 | 3790 |
| MEAN | 819 | 1654 | 3418 | 2488 | 1060 | 903 | 1163 | 870 | 364 | 182 | 186 | 126 |
| MAX | 5440 | 3370 | 12900 | 12000 | 2560 | 1760 | 1960 | 2520 | 610 | 495 | 359 | 187 |
| MIN | 83 | 732 | 802 | 841 | 460 | 495 | 841 | 422 | 202 | 108 | 99 | 95 |
| CFSM | 5.81 | 11.7 | 24.2 | 17.6 | 7.52 | 6.40 | 8.25 | 6.17 | 2.58 | 1.29 | 1.32 | .89 |
| IN. | 6.70 | 13.09 | 27.96 | 20.35 | 8.11 | 7.39 | 9.20 | 7.12 | 2.88 | 1.49 | 1.52 | 1.00 |
| AC-FT | 50350 | 98400 | 210200 | 153000 | 60980 | 55530 | 69190 | 53500 | 21660 | 11190 | 11420 | 7520 |

CAL YR 1975 TOTAL 404958 MEAN 1109 MAX 12900 MIN 80 CFSM 7.87 IN 106.84 AC-FT 803200
WTR YR 1976 TOTAL 404797 MEAN 1106 MAX 12900 MIN 83 CFSM 7.84 IN 106.80 AC-FT 802900

### 14236200 TILTON RIVER ABOVE BEAR CANYON CREEK, NEAR CINEBAR, WA--Continued

### WATER-QUALITY RECORDS

**PERIOD OF RECORD.**--
**WATER TEMPERATURES:** May 1965 to current year.

**INSTRUMENTATION.**--Temperature recorder since May 1965.

**REMARKS.**--Interruptions in the record were due to malfunctions of the instrument.

**EXTREMES FOR PERIOD OF DAILY RECORD.**--
**WATER TEMPERATURES:** Maximum, 24.5°C July 30, 1965; minimum, 0.5°C Feb. 2, 1972, Jan. 5-9, 1974.

**EXTREMES FOR CURRENT YEAR.**--
**WATER TEMPERATURES:** Maximum recorded, 21.0°C July 25; minimum, 2.0°C Feb. 5, 6.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 15.5 | 10.5 | 13.0 | 7.5 | 7.0 | 7.0 | 6.0 | 4.5 | 5.5 | 4.0 | 3.5 | 4.0 |
| 2 | 14.0 | 12.5 | 13.0 | 7.5 | 7.5 | 7.5 | 6.5 | 6.0 | 6.0 | 4.0 | 3.5 | 4.0 |
| 3 | 13.0 | 12.0 | 12.5 | 8.5 | 7.5 | 8.0 | 6.5 | 6.5 | 6.5 | 4.0 | 4.0 | 4.0 |
| 4 | 13.0 | 11.0 | 12.0 | 8.5 | 7.5 | 8.0 | 6.5 | 5.5 | 6.0 | 4.5 | 4.0 | 4.0 |
| 5 | 12.0 | 10.5 | 11.0 | 8.0 | 7.5 | 8.0 | 5.5 | 5.0 | 5.5 | 4.5 | 4.0 | 4.5 |
| 6 | 11.5 | 9.5 | 10.5 | 7.5 | 7.0 | 7.0 | 5.0 | 4.5 | 5.0 | 4.0 | 4.0 | 4.0 |
| 7 | 10.5 | 9.5 | 10.0 | 6.5 | 6.5 | 6.5 | 5.5 | 5.0 | 5.0 | 4.0 | 4.0 | 4.0 |
| 8 | 10.5 | 9.5 | 10.0 | 6.5 | 5.5 | 6.0 | 6.5 | 5.5 | 6.0 | 4.5 | 4.0 | 4.5 |
| 9 | 10.5 | 10.0 | 10.0 | 6.0 | 5.5 | 5.5 | 6.5 | 6.5 | 6.5 | 4.5 | 4.5 | 4.5 |
| 10 | 10.0 | 9.5 | 10.0 | 6.0 | 5.5 | 6.0 | 6.5 | 5.5 | 6.0 | 4.5 | 4.5 | 4.5 |
| 11 | 10.0 | 9.0 | 9.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.0 | 5.0 | 4.5 | 4.0 | 4.5 |
| 12 | 9.5 | 9.0 | 9.5 | 5.5 | 5.0 | 5.5 | 4.5 | 2.5 | 4.0 | 4.0 | 3.5 | 3.5 |
| 13 | 10.0 | 9.5 | 9.5 | 6.0 | 5.0 | 5.5 | 3.5 | 2.5 | 3.0 | 4.5 | 4.0 | 4.0 |
| 14 | 11.0 | 9.5 | 10.0 | 6.5 | 6.0 | 6.0 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 | 4.5 |
| 15 | 10.5 | 10.0 | 10.5 | 6.5 | 6.0 | 6.5 | 4.0 | 3.5 | 3.5 | 5.0 | 4.5 | 4.5 |
| 16 | 10.0 | 9.5 | 9.5 | 6.0 | 5.0 | 5.5 | 4.0 | 4.0 | 4.0 | 5.5 | 5.0 | 5.5 |
| 17 | 10.0 | 9.5 | 9.5 | 5.0 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 | 5.5 | 5.5 | 5.5 |
| 18 | 10.0 | 9.0 | 9.5 | 5.0 | 4.5 | 4.5 | 4.0 | 4.0 | 4.0 | 5.5 | 5.0 | 5.5 |
| 19 | 9.5 | 8.5 | 9.0 | 4.5 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | 5.0 | 4.5 | 4.5 |
| 20 | 9.0 | 8.5 | 8.5 | 5.0 | 4.5 | 4.5 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 | 4.5 |
| 21 | 8.5 | 8.0 | 8.5 | 5.5 | 5.0 | 5.0 | 4.0 | 3.5 | 4.0 | 4.5 | 4.5 | 4.5 |
| 22 | 8.0 | 7.5 | 7.5 | 5.5 | 5.5 | 5.5 | 4.5 | 4.0 | 4.5 | 5.0 | 4.5 | 4.5 |
| 23 | 7.5 | 7.0 | 7.5 | 5.5 | 5.5 | 5.5 | 4.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 |
| 24 | 7.0 | 6.5 | 7.0 | 6.0 | 5.5 | 6.0 | 5.0 | 4.5 | 5.0 | 5.0 | 4.5 | 4.5 |
| 25 | 7.0 | 7.0 | 7.0 | 6.0 | 5.5 | 5.5 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 | 4.5 |
| 26 | 7.0 | 6.5 | 6.5 | 5.5 | 5.5 | 5.5 | 6.0 | 5.0 | 5.5 | 4.5 | 4.5 | 4.5 |
| 27 | 7.0 | 6.5 | 7.0 | 5.5 | 5.0 | 5.5 | 5.5 | 5.0 | 5.0 | 5.5 | 4.5 | 5.0 |
| 28 | 6.5 | 6.5 | 6.5 | 5.0 | 4.0 | 4.5 | 5.5 | 5.0 | 5.5 | 5.5 | 5.5 | 5.5 |
| 29 | 6.5 | 6.5 | 6.5 | 4.0 | 3.5 | 3.5 | 6.5 | 5.5 | 6.0 | 5.5 | 5.0 | 5.0 |
| 30 | 7.0 | 6.5 | 7.0 | 4.5 | 2.5 | 3.0 | 5.5 | 5.0 | 5.0 | 5.0 | 4.5 | 5.0 |
| 31 | 7.0 | 7.0 | 7.0 | --- | --- | --- | 5.0 | 4.0 | 4.5 | 5.0 | 4.5 | 4.5 |
| MONTH | 15.5 | 6.5 | 9.0 | 8.5 | 2.5 | 5.5 | 6.5 | 2.5 | 5.0 | 5.5 | 3.5 | 4.5 |

## 14236200 TILTON RIVER ABOVE BEAR CANYON CREEK, NEAR CINEBAR, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 5.0 | 4.5 | 4.5 | 5.0 | 3.5 | 4.0 | 5.5 | 4.5 | 5.0 | 10.5 | 6.5 | 8.0 |
| 2 | 4.5 | 4.5 | 4.5 | 4.5 | 3.5 | 4.0 | 8.0 | 4.0 | 6.0 | 7.5 | 6.0 | 6.5 |
| 3 | 4.5 | 4.5 | 4.5 | 4.0 | 3.0 | 3.5 | 8.5 | 5.0 | 6.0 | 9.0 | 6.0 | 7.5 |
| 4 | 4.5 | 3.0 | 4.0 | 4.5 | 3.0 | 4.0 | --- | --- | --- | 7.0 | 6.0 | 6.5 |
| 5 | 2.5 | 2.0 | 2.5 | 5.0 | 3.0 | 4.0 | --- | --- | --- | 8.5 | 6.5 | 7.5 |
| 6 | 2.5 | 2.0 | 2.5 | 5.5 | 3.5 | 4.5 | --- | --- | --- | 10.5 | 6.5 | 8.5 |
| 7 | 4.0 | 2.5 | 3.5 | 6.0 | 4.0 | 5.0 | --- | --- | --- | 11.0 | 6.5 | 9.0 |
| 8 | 3.5 | 3.0 | 3.0 | 6.5 | 4.0 | 5.0 | --- | --- | --- | 11.5 | 7.5 | 9.5 |
| 9 | 4.0 | 3.5 | 3.5 | 6.0 | 4.0 | 5.0 | --- | --- | --- | 11.5 | 7.0 | 9.5 |
| 10 | 4.5 | 4.0 | 4.0 | 6.0 | 5.0 | 5.5 | --- | --- | --- | 9.0 | 7.5 | 8.0 |
| 11 | 4.5 | 4.5 | 4.5 | 6.0 | 4.5 | 5.5 | --- | --- | --- | 9.5 | 7.0 | 8.0 |
| 12 | 5.0 | 4.5 | 4.5 | 5.0 | 4.0 | 4.5 | --- | --- | --- | 11.5 | 7.0 | 9.0 |
| 13 | 5.0 | 5.0 | 5.0 | 5.5 | 4.5 | 5.5 | --- | --- | --- | 10.0 | 8.0 | 9.0 |
| 14 | 5.0 | 5.0 | 5.0 | 6.0 | 5.0 | 5.5 | --- | --- | --- | 11.0 | 7.5 | 8.5 |
| 15 | 5.0 | 4.5 | 4.5 | 7.0 | 4.5 | 6.0 | 5.0 | 4.0 | 4.5 | 12.0 | 7.0 | 9.5 |
| 16 | 4.5 | 4.5 | 4.5 | 7.5 | 5.5 | 6.5 | 7.0 | 5.0 | 6.0 | 10.0 | 8.5 | 9.0 |
| 17 | 4.5 | 4.0 | 4.5 | 6.5 | 5.5 | 6.0 | 6.0 | 5.5 | 5.5 | 9.5 | 7.5 | 8.5 |
| 18 | 4.5 | 4.0 | 4.0 | 6.0 | 4.5 | 5.5 | 6.0 | 5.0 | 5.5 | 11.5 | 6.5 | 9.0 |
| 19 | 4.5 | 4.5 | 4.5 | 4.5 | 3.5 | 4.0 | 7.0 | 5.5 | 6.5 | 9.5 | 8.0 | 8.5 |
| 20 | 5.5 | 4.5 | 5.0 | 4.5 | 4.0 | 4.0 | 7.0 | 5.5 | 6.5 | 11.5 | 7.5 | 9.5 |
| 21 | 5.5 | 4.5 | 5.0 | 6.5 | 4.5 | 5.5 | 8.0 | 4.5 | 6.5 | 13.0 | 8.0 | 10.5 |
| 22 | 6.0 | 5.0 | 5.5 | 6.0 | 4.5 | 5.5 | 6.5 | 6.0 | 6.0 | 10.0 | 9.0 | 9.5 |
| 23 | 6.0 | 5.5 | 6.0 | 5.0 | 4.5 | 5.0 | 6.0 | 5.5 | 6.0 | 10.5 | 9.0 | 9.5 |
| 24 | 5.5 | 4.5 | 5.0 | 5.0 | 4.5 | 5.0 | 7.0 | 6.0 | 6.5 | 9.5 | 8.0 | 8.5 |
| 25 | 4.0 | 4.0 | 4.0 | 5.0 | 4.5 | 4.5 | 7.5 | 5.5 | 6.0 | 10.5 | 7.5 | 9.0 |
| 26 | 4.5 | 4.0 | 4.5 | 5.0 | 4.5 | 5.0 | 8.5 | 5.5 | 7.0 | 14.0 | 9.0 | 11.0 |
| 27 | 4.5 | 3.5 | 4.0 | 4.5 | 3.5 | 4.0 | 8.5 | 5.5 | 7.0 | 11.5 | 9.0 | 10.5 |
| 28 | 4.0 | 3.5 | 3.5 | 5.5 | 4.5 | 5.0 | 8.0 | 6.5 | 7.0 | 9.0 | 8.0 | 8.5 |
| 29 | 4.5 | 4.0 | 4.5 | 6.5 | 5.0 | 5.5 | 10.0 | 6.5 | 8.0 | 8.5 | 7.5 | 8.0 |
| 30 | --- | --- | --- | 7.0 | 5.5 | 6.5 | 10.5 | 6.5 | 8.5 | 9.0 | 7.0 | 8.0 |
| 31 | --- | --- | --- | 6.5 | 5.0 | 5.5 | --- | --- | --- | 8.0 | 7.0 | 7.5 |
| MONTH | 6.0 | 2.0 | 4.5 | 7.5 | 3.0 | 5.0 | --- | --- | --- | 14.0 | 6.0 | 8.5 |

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 8.0 | 6.5 | 7.5 | 13.0 | 11.0 | 12.0 | 17.0 | 14.5 | 16.0 | 16.0 | 14.5 | 15.0 |
| 2 | 10.0 | 7.0 | 8.5 | 17.0 | 10.5 | 13.5 | 17.0 | 14.5 | 15.5 | 17.0 | 13.0 | 14.5 |
| 3 | 10.5 | 6.5 | 8.5 | 14.5 | 12.5 | 13.5 | 19.5 | 14.0 | 16.5 | 17.5 | 12.5 | 14.5 |
| 4 | 11.5 | 8.0 | 9.5 | 15.5 | 12.5 | 14.0 | 16.5 | 14.5 | 15.0 | 16.5 | 13.0 | 14.5 |
| 5 | 12.5 | 7.5 | 10.0 | 19.0 | 12.5 | 15.5 | 14.5 | 13.5 | 14.0 | 14.5 | 13.0 | 13.5 |
| 6 | 13.5 | 9.0 | 11.0 | 18.5 | 13.5 | 16.0 | 14.0 | 13.5 | 14.0 | 13.5 | 12.0 | 12.5 |
| 7 | 11.0 | 9.5 | 10.0 | 16.0 | 13.5 | 14.5 | 13.5 | 13.0 | 13.0 | 16.0 | 11.5 | 13.0 |
| 8 | 11.0 | 9.5 | 10.0 | 13.5 | 13.0 | 13.0 | 14.0 | 12.5 | 13.5 | 16.0 | 11.0 | 13.5 |
| 9 | 14.5 | 9.0 | 11.5 | 14.5 | 12.0 | 13.0 | 15.0 | 13.0 | 13.5 | 16.5 | 11.5 | 14.0 |
| 10 | 12.5 | 10.5 | 11.0 | 14.0 | 11.5 | 13.0 | 18.5 | 13.0 | 15.5 | 15.5 | 13.0 | 14.5 |
| 11 | 10.5 | 9.5 | 10.0 | 13.0 | 12.0 | 12.5 | 19.5 | 14.5 | 16.5 | --- | --- | --- |
| 12 | 10.5 | 9.0 | 10.0 | 13.0 | 11.5 | 12.5 | 17.5 | 14.5 | 15.5 | --- | --- | --- |
| 13 | 12.0 | 8.5 | 10.5 | 17.0 | 11.0 | 14.0 | 15.5 | 13.5 | 14.5 | --- | --- | --- |
| 14 | 14.5 | 9.0 | 11.5 | 18.0 | 12.5 | 15.0 | 15.5 | 13.0 | 14.0 | --- | --- | --- |
| 15 | 12.0 | 10.5 | 11.0 | 19.5 | 12.5 | 16.0 | 14.5 | 12.5 | 13.5 | --- | --- | --- |
| 16 | 11.0 | 10.0 | 10.5 | 19.5 | 13.5 | 16.5 | 13.5 | 12.0 | 12.5 | --- | --- | --- |
| 17 | 15.5 | 9.5 | 12.0 | 16.5 | 14.0 | 14.5 | 15.5 | 12.0 | 13.5 | --- | --- | --- |
| 18 | 15.5 | 11.0 | 13.0 | 18.5 | 12.5 | 15.0 | 16.5 | 12.0 | 14.0 | --- | --- | --- |
| 19 | 13.5 | 12.0 | 12.5 | 18.5 | 12.5 | 15.5 | 14.0 | 12.5 | 12.5 | --- | --- | --- |
| 20 | 14.5 | 10.5 | 12.5 | 16.5 | 14.0 | 15.0 | 14.5 | 12.0 | 13.0 | --- | --- | --- |
| 21 | 13.0 | 11.0 | 12.0 | 16.0 | 12.5 | 14.0 | 16.5 | 12.0 | 14.0 | --- | --- | --- |
| 22 | 11.5 | 10.5 | 11.0 | 19.0 | 13.0 | 16.0 | 14.5 | 12.5 | 13.5 | --- | --- | --- |
| 23 | 11.0 | 10.0 | 10.5 | 20.5 | 14.0 | 17.0 | 15.0 | 12.5 | 13.5 | --- | --- | --- |
| 24 | 12.5 | 10.5 | 11.5 | 20.5 | 14.5 | 17.5 | 15.5 | 13.5 | 14.5 | --- | --- | --- |
| 25 | 13.0 | 10.0 | 11.0 | 21.0 | 14.0 | 17.5 | 14.5 | 13.0 | 13.5 | --- | --- | --- |
| 26 | 15.5 | 9.0 | 12.0 | 17.5 | 14.0 | 15.0 | 15.0 | 12.0 | 13.5 | --- | --- | --- |
| 27 | 16.5 | 10.5 | 13.5 | 20.0 | 12.5 | 15.5 | 14.0 | 12.5 | 13.0 | --- | --- | --- |
| 28 | 17.5 | 12.0 | 14.5 | 20.5 | 13.0 | 16.5 | 17.5 | 12.5 | 14.5 | --- | --- | --- |
| 29 | 14.5 | 12.5 | 13.5 | 17.0 | 14.5 | 15.5 | 18.0 | 13.5 | 15.5 | --- | --- | --- |
| 30 | 13.5 | 11.5 | 12.5 | 18.0 | 14.0 | 15.5 | 18.0 | 14.0 | 16.0 | --- | --- | --- |
| 31 | --- | --- | --- | 20.0 | 14.0 | 16.5 | 18.0 | 13.5 | 15.5 | --- | --- | --- |
| MONTH | 17.5 | 6.5 | 11.0 | 21.0 | 10.5 | 15.0 | 19.5 | 12.0 | 14.5 | --- | --- | --- |
| YEAR | 21.0 | 2.0 | 8.5 | | | | | | | | | |

## 14237800 MAYFIELD RESERVOIR NEAR SILVER CREEK, WA

**LOCATION.**--Lat 46°30'13", long 122°35'11", in SE¼SW¼ sec.20, T.12 N., R.2 E., Lewis County, Hydrologic Unit 17080005, on right bank at Mayfield Dam on Cowlitz River 0.3 mi (0.5 km) downstream from Silver Creek, 4 mi (6.4 km) south of town of Silver Creek, and at mi 52.0 (83.7 km).

**DRAINAGE AREA.**--1,392 mi² (3,605 km²).

### MONTHEND CONTENTS

**PERIOD OF RECORD.**--April 1962 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is at mean sea level. Prior to Mar. 5, 1963, nonrecording gage at same site and datum.

**REMARKS.**--Reservoir is formed by concrete arch dam, completed April 1962; storage began Apr. 14, 1962. Usable capacity, 21,380 acre-ft (26.4 hm³) between elevation 415 ft (126.5 m), lower limit of operation, and 425 ft (129.5 m), top of taintor gates. Dead storage below elevation 415 ft (126.5 m), 112,340 acre-ft (139 hm³). Crest of spillway is at elevation 385 ft (117.3 m). Water is used by city of Tacoma for power development. Figures given herein represent total contents. Capacity table furnished by city of Tacoma.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum contents, 134,850 acre-ft (166 hm³) Dec. 9, 1971, elevation, 425.50 ft (129.692 m); minimum since normal operating level was attained, 112,830 acre-ft (139 hm³) June 4, 1969, elevation, 415.24 ft (126.565 m).

**EXTREMES FOR CURRENT YEAR.**--Maximum contents, 133,830 acre-ft (165 hm³) Dec. 26, Feb. 17; elevation, 425.05 ft 129.555 m); minimum, 119,202 acre-ft (147 hm³) Apr. 2, elevation, 418.32 ft (127.504 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 423.12 | 129,526 | - |
| Oct. 31 | 422.37 | 127,884 | -1,642 |
| Nov. 30 | 424.90 | 133,500 | +5,616 |
| Dec. 31 | 420.02 | 122,794 | -10,706 |
| CAL YR 1975 | - | - | -8,422 |
| Jan. 31 | 422.37 | 127,884 | +5,090 |
| Feb. 29 | 423.44 | 130,238 | +2,354 |
| Mar. 31 | 421.35 | 125,660 | -4,578 |
| Apr. 30 | 421.21 | 125,352 | -308 |
| May 31 | 423.78 | 130,994 | +5,642 |
| June 30 | 423.68 | 130,766 | -228 |
| July 31 | 423.78 | 130,994 | +228 |
| Aug. 31 | 424.18 | 131,884 | +890 |
| Sept. 30 | 423.55 | 130,480 | -1,404 |
| WTR YR 1976 | - | - | +954 |

## 14237800 MAYFIELD RESERVOIR NEAR SILVER CREEK, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 18... | 1130 | 1.0 | 48 | 6.6 | 8.0 | 2 | 11.4 | 79 |
| 18... | 1135 | 20 | 50 | 6.8 | 7.9 | 2 | 11.3 | 103 |
| 18... | 1140 | 50 | 42 | 6.9 | 7.8 | 2 | 11.3 | 81 |
| 18... | 1145 | 100 | 44 | 7.2 | 7.4 | 2 | 11.3 | 75 |
| 18... | 1150 | 175 | 42 | 7.2 | 7.0 | 4 | 10.6 | 89 |
| JAN , 1974 | | | | | | | | |
| 18... | 1035 | 1.0 | -- | -- | 5.6 | -- | 12.2 | -- |
| 29... | 1055 | 1.0 | -- | -- | 4.5 | -- | 13.0 | -- |
| FEB | | | | | | | | |
| 20... | 1115 | 1.0 | 42 | 6.8 | 6.2 | 10 | 12.4 | 60 |
| 20... | 1120 | 20 | 42 | 6.8 | 5.6 | 7 | 12.2 | 115 |
| 20... | 1125 | 50 | 44 | 6.8 | 5.5 | 10 | 12.2 | 71 |
| 20... | 1130 | 100 | 43 | 6.9 | 5.5 | 8 | 12.5 | 20 |
| 20... | 1135 | 180 | 44 | 6.8 | 5.5 | 25 | 12.1 | 35 |
| JUN | | | | | | | | |
| 18... | 1155 | 1.0 | 50 | 7.6 | 11.5 | 2 | 11.8 | <1 |
| 18... | 1200 | 20 | 52 | 7.2 | 10.5 | 1 | 11.9 | <1 |
| 18... | 1205 | 50 | 50 | 7.6 | 9.0 | 1 | 12.0 | 6 |
| 18... | 1210 | 100 | 54 | 7.4 | 8.5 | 1 | 12.0 | 50 |
| 18... | 1215 | 180 | 50 | 7.8 | 8.4 | 3 | 11.7 | 10 |
| DEC | | | | | | | | |
| 10... | 1040 | 1.0 | 53 | 7.3 | 9.5 | 1 | 10.3 | 2 |
| 10... | 1045 | 20 | 54 | 7.3 | 9.4 | 1 | 10.3 | 7 |
| 10... | 1050 | 50 | 49 | 7.3 | 9.4 | 1 | 10.2 | 15 |
| 10... | 1055 | 100 | 44 | 7.2 | 8.2 | 1 | 10.2 | 9 |
| JAN , 1975 | | | | | | | | |
| 21... | 1115 | 1.0 | -- | -- | 6.0 | -- | 12.0 | -- |
| MAR | | | | | | | | |
| 05... | 1020 | 1.0 | 48 | 7.2 | 5.7 | 2 | 12.1 | 48 |
| 05... | 1025 | 20 | 46 | 7.0 | 5.7 | 2 | 12.0 | 74 |
| 05... | 1030 | 50 | 46 | 6.9 | 5.6 | 2 | 12.1 | 72 |
| 05... | 1035 | 100 | 46 | 7.0 | 5.4 | 2 | 12.1 | 56 |
| MAY | | | | | | | | |
| 07... | 1100 | 1.0 | 39 | 7.7 | 9.4 | 1 | 12.4 | 8 |
| 07... | 1105 | 20 | 40 | 7.6 | 7.6 | 1 | 12.2 | 9 |
| 07... | 1110 | 50 | 40 | 7.6 | 6.9 | 1 | 12.1 | 6 |
| 07... | 1115 | 100 | 42 | 7.6 | 6.4 | 1 | 11.8 | 1 |
| AUG | | | | | | | | |
| 06... | 0855 | 1.0 | 75 | -- | 14.3 | 1 | 10.4 | 10 |
| 06... | 0900 | 20 | 55 | -- | 9.6 | 1 | 10.3 | 3 |

## 14237800 MAYFIELD RESERVOIR NEAR SILVER CREEK, WA--Continued

### WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | |
| 18... | .11 | .01 | .12 | .02 | .03 | .01 | .00 |
| 18... | .18 | .01 | .19 | .02 | .09 | .01 | .00 |
| 18... | .21 | .01 | .22 | .02 | .10 | .01 | .00 |
| 18... | .17 | .01 | .18 | .02 | .07 | .01 | .00 |
| 18... | .31 | .01 | .32 | .03 | .16 | .02 | .00 |
| JAN , 1974 | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- |
| 29... | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | |
| 20... | .19 | .01 | .20 | .11 | .25 | .03 | .02 |
| 20... | .17 | .01 | .18 | .12 | .36 | .04 | .03 |
| 20... | .15 | .01 | .16 | .15 | .85 | .04 | .02 |
| 20... | .15 | .01 | .16 | .10 | .15 | .04 | .03 |
| 20... | .14 | .01 | .15 | .15 | .32 | .12 | .03 |
| JUN | | | | | | | |
| 18... | .05 | .00 | .05 | .02 | .12 | .01 | .00 |
| 18... | .04 | .01 | .05 | .03 | .09 | .85 | .84 |
| 18... | .05 | .01 | .06 | .03 | .14 | .05 | .01 |
| 18... | .05 | .01 | .06 | .03 | .08 | .52 | .48 |
| 18... | .06 | .01 | .07 | .04 | .19 | .17 | .02 |
| DEC | | | | | | | |
| 10... | -- | -- | .06 | -- | -- | .01 | -- |
| 10... | -- | -- | .08 | -- | -- | .01 | -- |
| 10... | -- | -- | .09 | -- | -- | .01 | -- |
| 10... | -- | -- | .26 | -- | -- | .01 | -- |
| JAN , 1975 | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | |
| 05... | -- | -- | .18 | -- | -- | .02 | -- |
| 05... | -- | -- | .17 | -- | -- | .01 | -- |
| 05... | -- | -- | .16 | -- | -- | .02 | -- |
| 05... | -- | -- | .14 | -- | -- | .01 | -- |
| MAY | | | | | | | |
| 07... | -- | -- | .09 | -- | -- | .01 | -- |
| 07... | -- | -- | .05 | -- | -- | .01 | -- |
| 07... | -- | -- | .08 | -- | -- | .02 | -- |
| 07... | -- | -- | .06 | -- | -- | .02 | -- |
| AUG | | | | | | | |
| 06... | -- | -- | .02 | -- | -- | .01 | -- |
| 06... | -- | -- | .01 | -- | -- | .02 | -- |

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | DIS-SOLVED OXYGEN (MG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| AUG , 1975 | | | | | | | | | | |
| 06... | 0905 | 50 | 55 | -- | 8.6 | 0 | 13.2 | 24 | .04 | .01 |
| 06... | 0910 | 100 | 55 | -- | 7.9 | 0 | 10.3 | 40 | .09 | .01 |
| 07... | 1225 | 1.0 | 50 | -- | 16.0 | 1 | 10.2 | <1 | .00 | .01 |
| 07... | 1230 | 20 | 49 | -- | 10.9 | 1 | 11.2 | 5 | .01 | .01 |
| 07... | 1235 | 50 | 50 | -- | 9.5 | 1 | 10.2 | 5 | .03 | .00 |
| 07... | 1240 | 100 | 50 | -- | 8.9 | 0 | 9.8 | <1 | .07 | .00 |
| NOV | | | | | | | | | | |
| 19... | 1130 | 1.0 | 38 | 7.1 | 9.0 | 2 | 10.6 | 91 | .07 | .01 |
| 19... | 1135 | 20 | 37 | 7.5 | 9.0 | 1 | 10.7 | 64 | .08 | .01 |
| 19... | 1140 | 50 | 37 | 7.7 | 9.0 | 1 | 10.6 | 109 | .08 | .01 |
| 19... | 1145 | 100 | 37 | 7.7 | 7.8 | 1 | 10.8 | 82 | .25 | .01 |
| DEC | | | | | | | | | | |
| 02... | 1051 | 1.0 | -- | -- | 7.5 | 4 | 11.3 | -- | -- | -- |
| FEB , 1976 | | | | | | | | | | |
| 18... | 1445 | 1.0 | 47 | 7.2 | 5.3 | 5 | 12.0 | 20 | .15 | .02 |
| 18... | 1455 | 20 | 46 | 7.1 | 5.1 | 5 | 12.0 | 13 | .15 | .02 |
| 18... | 1505 | 50 | 48 | 7.4 | 5.1 | 5 | 12.0 | 28 | .16 | .02 |
| 18... | 1515 | 100 | 48 | 7.5 | 5.1 | 5 | 12.0 | 25 | .18 | .02 |
| MAY | | | | | | | | | | |
| 18... | 1105 | 1.0 | 40 | 7.7 | 12.8 | 1 | 11.5 | 25 | .11 | .01 |
| 18... | 1115 | 20 | 47 | 7.6 | 7.3 | 2 | 11.7 | 34 | .10 | .01 |
| 18... | 1125 | 50 | 49 | 7.6 | 6.9 | 2 | 11.5 | 3 | .10 | .01 |
| 18... | 1135 | 100 | 50 | 7.5 | 6.1 | 2 | 10.4 | 11 | .12 | .01 |
| SEP | | | | | | | | | | |
| 21... | 1625 | 1.0 | 43 | 7.3 | 15.4 | 0 | 10.6 | 160 | .00 | .01 |
| 21... | 1635 | 20 | 41 | 7.3 | 10.2 | 0 | 10.0 | 690 | .00 | .01 |
| 21... | 1645 | 50 | 41 | 7.2 | 9.7 | 0 | 9.7 | <1 | .01 | .01 |
| 21... | 1655 | 100 | 47 | 7.1 | 8.7 | 0 | 8.8 | B8 | .02 | .01 |

B Results based upon colony counts outside the ideal range.

## 14238000 COWLITZ RIVER BELOW MAYFIELD DAM, WA

LOCATION.--Lat 46°30'38", long 122°36'54", in SE¼NE¼ sec.24, T.12 N., R.1 E., Lewis County, Hydrologic Unit 17080005, on right bank, 1.1 mi (1.8 km) upstream from fish barrier dam, 1.4 mi (2.3 km) downstream from Mayfield Dam, 1.5 mi (2.4 km) upstream from Mill Creek, 2.1 mi (3.4 km) downstream from Winston Creek, and at mile 50.6 (81.4 km).

DRAINAGE AREA.--1,400 mi² (3,626 km²).

### WATER DISCHARGE RECORDS

PERIOD OF RECORD.--August to October 1910, December 1910 to September 1911, October to November 1911 (monthly discharge only), April 1934 to current year. Published as "at Mayfield" 1910-11 and "near Mayfield" 1934-61.

REVISED RECORDS.--WSP 1318: 1949(M). WSP 1348: Drainage area. WSP 1718: 1943,1947.

GAGE.--Water-stage recorder. Datum of gage is 226.6 ft (69.07 m) above mean sea level. August 1910 to November 1911 nonrecording gage at site 2.5 mi (4.0 km) upstream at different datum. Apr. 27 to July 2, 1934, nonrecording gage at present site and datum.

REMARKS.--Water discharge records excellent. Flow regulated by Riffe Lake (see sta 14234800) at mile 65.5 (105.4 km) and Mayfield Reservoir (see sta 14237800) at mile 52.0 (83.7 km). Minor diversions for domestic and farm use above station.

AVERAGE DISCHARGE.--42 years (water years 1935-76), 6,414 ft³/s (181.6 m³/s), 62.22 in/yr (1,580 mm/yr), 4,647,000 acre-ft/yr (5,730 hm³/yr), adjusted for storage in Mayfield Reservoir since April 1962, and Riffe Lake since April 1968.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 67,000 ft³/s (1,900 m³/s) Dec. 13, 1946, maximum gage height, 25.26 ft (7.699 m) Dec. 4, 1975; minimum, 37 ft³/s (1.05 m³/s) Apr. 16, 1962, gage height, 6.42 ft (1.957 m); minimum daily, 451 ft³/s (12.8 m³/s) Apr. 16, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1933 is known to have exceeded that of Dec. 13, 1946.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 64,700 ft³/s (1,830 m³/s) Dec. 4, gage height, 25.26 ft (7.699 m); minimum, 2,130 ft³/s (60.3 m³/s) Oct. 1, gage height, 8.99 ft (2.740 m); minimum daily, 2,390 ft³/s (67.7 m³/s) Aug. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2740 | 10500 | 26400 | 14300 | 7550 | 8930 | 8850 | 2520 | 8420 | 8170 | 4950 | 2910 |
| 2 | 2830 | 10200 | 32300 | 13400 | 10300 | 9180 | 7770 | 3570 | 6950 | 7700 | 3960 | 2930 |
| 3 | 3500 | 10500 | 27800 | 11600 | 10700 | 9480 | 6100 | 4150 | 5170 | 5950 | 2920 | 2580 |
| 4 | 3260 | 10000 | 50100 | 10800 | 10700 | 9310 | 5590 | 4480 | 4770 | 3540 | 2490 | 2580 |
| 5 | 3380 | 9930 | 60000 | 17100 | 10700 | 9000 | 5770 | 3410 | 4890 | 2970 | 2390 | 2580 |
| 6 | 3840 | 10400 | 27800 | 10000 | 10200 | 9870 | 6080 | 4170 | 4080 | 2920 | 2390 | 2590 |
| 7 | 3890 | 10500 | 27500 | 9350 | 9250 | 8470 | 5740 | 2970 | 3450 | 3720 | 3210 | 2880 |
| 8 | 4090 | 10500 | 27100 | 10700 | 9250 | 9930 | 5820 | 3060 | 2970 | 6650 | 3430 | 3290 |
| 9 | 4660 | 10500 | 38800 | 13900 | 9220 | 9060 | 5840 | 3870 | 2900 | 11400 | 2920 | 2840 |
| 10 | 4030 | 10500 | 40200 | 15000 | 9220 | 8640 | 5140 | 3220 | 2910 | 10100 | 3050 | 3040 |
| 11 | 2830 | 10400 | 22900 | 13800 | 9350 | 8970 | 4700 | 2770 | 2940 | 6700 | 2940 | 2640 |
| 12 | 2670 | 10400 | 16400 | 13900 | 9220 | 10100 | 5410 | 2620 | 2910 | 7520 | 2950 | 2540 |
| 13 | 4140 | 10400 | 20400 | 12900 | 9050 | 9170 | 5270 | 2640 | 2950 | 6800 | 3010 | 2730 |
| 14 | 3770 | 10400 | 19900 | 11300 | 7320 | 8850 | 5610 | 2910 | 2740 | 7600 | 2830 | 2930 |
| 15 | 3870 | 10400 | 18000 | 27500 | 7570 | 9100 | 5710 | 2740 | 2810 | 8770 | 2740 | 3680 |
| 16 | 4210 | 10400 | 17100 | 26000 | 4480 | 9050 | 5010 | 2980 | 2760 | 8820 | 3410 | 4130 |
| 17 | 3160 | 10400 | 17200 | 21200 | 9420 | 7850 | 4990 | 3180 | 3540 | 6850 | 2850 | 3730 |
| 18 | 4160 | 10500 | 17300 | 19400 | 10700 | 8550 | 2810 | 2780 | 3320 | 6720 | 2550 | 3160 |
| 19 | 3340 | 10400 | 17500 | 17900 | 9350 | 9540 | 3750 | 3850 | 3080 | 6950 | 2810 | 3020 |
| 20 | 5220 | 10400 | 18300 | 17600 | 9200 | 9220 | 4810 | 5510 | 3650 | 5630 | 2920 | 3060 |
| 21 | 6480 | 10400 | 18100 | 16900 | 8100 | 9220 | 5370 | 5070 | 3920 | 5190 | 2910 | 3400 |
| 22 | 5680 | 10400 | 17300 | 16800 | 8150 | 9250 | 5090 | 4280 | 4140 | 5190 | 2730 | 3480 |
| 23 | 6580 | 10400 | 17400 | 17200 | 8450 | 9540 | 4440 | 4810 | 4330 | 5430 | 2560 | 3210 |
| 24 | 7620 | 10400 | 17400 | 16800 | 9090 | 10300 | 4530 | 4650 | 5080 | 5470 | 2560 | 2910 |
| 25 | 7570 | 10400 | 18200 | 16100 | 8970 | 10400 | 4670 | 6020 | 7540 | 6120 | 2930 | 2910 |
| 26 | 7520 | 10400 | 18600 | 11900 | 9110 | 10100 | 3670 | 6370 | 7830 | 6470 | 2840 | 2920 |
| 27 | 8520 | 10400 | 22200 | 5750 | 8970 | 9420 | 3050 | 5770 | 7850 | 6920 | 2800 | 2940 |
| 28 | 9270 | 10400 | 21000 | 5770 | 9110 | 8400 | 3590 | 7720 | 7880 | 5190 | 2660 | 2950 |
| 29 | 9900 | 10400 | 18400 | 5710 | 8890 | 9020 | 9150 | 9150 | 7880 | 4440 | 2710 | 2920 |
| 30 | 10600 | 10800 | 19000 | 5390 | --- | 9270 | 5110 | 9570 | 8200 | 4410 | 2770 | 2920 |
| 31 | 10600 | --- | 18700 | 5770 | --- | 9120 | --- | 9250 | --- | 5710 | 2930 | --- |
| TOTAL | 163930 | 312030 | 749300 | 431740 | 261590 | 286310 | 159440 | 140060 | 141860 | 196020 | 91120 | 90400 |
| MEAN | 5288 | 10400 | 24170 | 13930 | 9020 | [illegible]36 | 5315 | 4518 | 4729 | 6323 | 2939 | 3013 |
| MAX | 10600 | 10800 | 60000 | 27500 | 10700 | 10400 | 9150 | 9570 | 8420 | 11400 | 4950 | 4130 |
| MIN | 2670 | 9930 | 16400 | 5390 | 4480 | 7850 | 2810 | 2520 | 2740 | 2920 | 2390 | 2540 |
| AC-FT | 325200 | 618900 | 1486000 | 856400 | 518900 | 567900 | 316200 | 277800 | 281400 | 388800 | 180700 | 179300 |
| † | -111,453 | -83,458 | -79,768 | +19,080 | -145,025 | -265,238 | +98,677 | +432,975 | +177,108 | -9,996 | +31,223 | -58,020 |
| MEAN‡ | 3,475 | 9,000 | 22,860 | 14,240 | 6,498 | 4,922 | 6,974 | 11,560 | 7,707 | 6,159 | 3,445 | 2,039 |
| CFSM‡ | 2.48 | 6.43 | 16.3 | 10.2 | 4.64 | 3.52 | 4.98 | 8.26 | 5.50 | 4.40 | 2.46 | 1.46 |
| IN.‡ | 2.86 | 7.17 | 18.83 | 11.72 | 5.01 | 4.05 | 5.56 | 9.52 | 6.14 | 5.07 | 2.84 | 1.62 |
| AC-FT‡ | 213,700 | 535,400 | 1,406M | 875,500 | 373,900 | 302,700 | 414,900 | 710,800 | 458,500 | 378,800 | 211,900 | 121,300 |

```
CAL YR 1975:  TOTAL  3,059,890   MEAN  8,383   MAX  60,000   MIN  2,070   AC-FT  6,069,000
    DO.....:  MEAN‡      8,376   CFSM‡  5.98   IN.‡  81.21   AC-FT‡  6,065,000
WTR YR 1976:  TOTAL  3,023,800   MEAN  8,262   MAX  60,000   MIN  2,390   AC-FT  5,998,000
    DO.....:  MEAN‡      8,274   CFSM‡  5.91   IN.‡  80.39   AC-FT‡  6,004,000
```

† Change in contents, in acre-feet, in Riffe Lake and Mayfield Reservoir.
‡ Adjusted for change in contents in Riffe Lake and Mayfield Reservoir.
M Thousands.

## 14238000 COWLITZ RIVER BELOW MAYFIELD DAM, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1950 to current year.

INSTRUMENTATION.--Temperature recorder since October 1950.

REMARKS.--Interruptions in record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 21.0°C July 28, 29, 1958; minimum, 0.5°C Jan. 28 to Feb. 2, 1956.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 12.5°C Aug. 27, Sept. 9, 13; minimum recorded, 4.5°C Mar. 1-9.

TEMPERATURES (DEG. C) WATER YEAR OCTOBER -----------------------

| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | 11.5 | 10.5 | 11.0 | 8.0 | 8.0 | 8.0 | 7.5 | 7.0 | 7.5 | 7.0 | 6.5 | 7.0 |
| 2 | 11.5 | 11.0 | 11.5 | 8.0 | 7.5 | 8.0 | 7.0 | 7.0 | 7.0 | 6.5 | 6.5 | 6.5 |
| 3 | 11.5 | 10.5 | 11.0 | 8.5 | 7.5 | 8.0 | 7.5 | 7.0 | 7.5 | 6.5 | 6.5 | 6.5 |
| 4 | 11.5 | 10.0 | 10.5 | 8.5 | 8.0 | 8.0 | 7.5 | 7.5 | 7.5 | 6.5 | 6.0 | 6.5 |
| 5 | 11.5 | 10.5 | 11.0 | 9.0 | 8.5 | 8.5 | 8.0 | 7.5 | 8.0 | 6.5 | 6.0 | 6.5 |
| 6 | 11.0 | 10.0 | 10.5 | 9.0 | 9.0 | 9.0 | 8.0 | 8.0 | 8.0 | 6.5 | 6.5 | 6.5 |
| 7 | 11.0 | 10.0 | 10.5 | 9.0 | 9.0 | 9.0 | 8.0 | 7.5 | 8.0 | 6.5 | 6.5 | 6.5 |
| 8 | 10.5 | 10.0 | 10.0 | 9.0 | 9.0 | 9.0 | 8.0 | 8.0 | 8.0 | 6.5 | 6.0 | 6.0 |
| 9 | 10.5 | 10.0 | 10.5 | 9.0 | 9.0 | 9.0 | 8.0 | 8.0 | 7.5 | 6.5 | 6.0 | 6.0 |
| 10 | 10.5 | 10.0 | 10.0 | 9.0 | 8.5 | 8.5 | 8.0 | 8.0 | 8.0 | 6.5 | 6.0 | 6.0 |
| 11 | 10.0 | 10.0 | 10.0 | 8.5 | 8.5 | 8.5 | 8.0 | 8.0 | 8.0 | 6.0 | 6.0 | 6.0 |
| 12 | 10.0 | 10.0 | 10.0 | 8.5 | 8.5 | 8.5 | 8.0 | 7.5 | 8.0 | 6.0 | 6.0 | 6.0 |
| 13 | 10.0 | 9.5 | 9.5 | 8.5 | 8.5 | 8.5 | 7.5 | 7.5 | 7.5 | 6.0 | 6.0 | 6.0 |
| 14 | 10.0 | 9.5 | 9.5 | 8.5 | 8.5 | 8.5 | 7.5 | 7.0 | 7.5 | 6.0 | 6.0 | 6.0 |
| 15 | 9.5 | 9.5 | 9.5 | 9.0 | 8.0 | 8.5 | 7.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 |
| 16 | 10.0 | 9.5 | 10.0 | 9.5 | 9.0 | 9.0 | 7.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 |
| 17 | 10.0 | 9.0 | 9.5 | 9.0 | 9.0 | 9.0 | 7.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 |
| 18 | 9.5 | 9.0 | 9.0 | 9.0 | 8.5 | 9.0 | 7.0 | 7.0 | 7.0 | 6.5 | 6.0 | 6.5 |
| 19 | 9.5 | 9.0 | 9.5 | 8.5 | 8.5 | 8.5 | 7.0 | 7.0 | 7.0 | 6.5 | 6.5 | 6.5 |
| 20 | 9.5 | 9.0 | 9.5 | 8.5 | 8.5 | 8.5 | 7.0 | 7.0 | 7.0 | 6.5 | 6.0 | 6.5 |
| 21 | 9.5 | 9.0 | 9.5 | 8.5 | 8.5 | 8.5 | 7.0 | 7.0 | 7.0 | 6.5 | 6.0 | 6.0 |
| 22 | 9.0 | 9.0 | 9.0 | 8.5 | 8.5 | 8.5 | 7.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 |
| 23 | 9.0 | 9.0 | 9.0 | 8.5 | 8.5 | 8.5 | 7.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 |
| 24 | 9.5 | 9.0 | 9.0 | 8.5 | 8.5 | 8.5 | 7.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 |
| 25 | 9.5 | 8.5 | 9.0 | 8.5 | 8.5 | 8.5 | 7.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 |
| 26 | 9.0 | 8.5 | 9.0 | 8.5 | 8.0 | 8.0 | 7.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 |
| 27 | 9.0 | 8.5 | 8.5 | 8.5 | 8.0 | 8.0 | 7.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 |
| 28 | 9.0 | 8.5 | 8.5 | 8.5 | 8.5 | 8.5 | 7.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 |
| 29 | 8.5 | 8.5 | 8.5 | 8.5 | 8.0 | 8.0 | 7.0 | 7.0 | 7.0 | 6.0 | 6.0 | 6.0 |
| 30 | 8.5 | 8.0 | 8.0 | 8.0 | 7.5 | 8.0 | 7.0 | 7.0 | 7.0 | --- | --- | --- |
| 31 | 8.0 | 8.0 | 8.0 | --- | --- | --- | 7.0 | 7.0 | 7.0 | --- | --- | --- |
| MONTH | 11.5 | 8.0 | 9.5 | 9.5 | 7.5 | 8.5 | 8.0 | 7.0 | 7.5 | 7.0 | 6.0 | 6.0 |

## COWLITZ RIVER BASIN

### 14238000 COWLITZ RIVER BELOW MAYFIELD DAM, WA--Continued

### TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | --- | --- | --- | 5.0 | 4.5 | 5.0 | 5.5 | 5.0 | 5.5 | | | |
| 2 | --- | --- | --- | 5.0 | 4.5 | 4.5 | 5.5 | 5.0 | 5.5 | | | |
| 3 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 5.5 | 5.5 | 5.5 | | | |
| 4 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 6.0 | 5.5 | 5.5 | | | |
| 5 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 5.5 | 5.5 | 5.5 | | | |
| 6 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 6.0 | 5.5 | 5.5 | | | |
| 7 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 7.0 | 5.5 | 6.5 | | | |
| 8 | --- | --- | --- | 4.5 | 4.5 | 4.5 | 6.5 | 6.0 | 6.5 | | | |
| 9 | --- | --- | --- | 5.0 | 4.5 | 5.0 | 7.0 | 6.0 | 6.5 | | | |
| 10 | --- | --- | --- | 5.0 | 5.0 | 5.0 | 6.0 | 6.0 | 6.0 | | | |
| 11 | --- | --- | --- | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.0 | | | |
| 12 | --- | --- | --- | 5.0 | 5.0 | 5.0 | 7.0 | 6.0 | 6.5 | | | |
| 13 | --- | --- | --- | 5.0 | 5.0 | 5.0 | 7.0 | 6.5 | 6.5 | | | |
| 14 | --- | --- | --- | 5.0 | 5.0 | 5.0 | 7.0 | 6.0 | 6.5 | | | |
| 15 | --- | --- | --- | 5.0 | 5.0 | 5.0 | 6.0 | 6.0 | 6.0 | | | |
| 16 | --- | --- | --- | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.0 | | | |
| 17 | --- | --- | --- | 5.5 | 5.0 | 5.0 | 6.5 | 6.0 | 6.5 | | | |
| 18 | --- | --- | --- | 5.5 | 5.0 | 5.0 | 6.5 | 6.5 | 6.5 | | | |
| 19 | --- | --- | --- | 5.0 | 5.0 | 5.0 | 6.5 | 6.5 | 6.5 | | | |
| 20 | 5.0 | 5.0 | 5.0 | 5.5 | 5.0 | 5.0 | 6.5 | 6.0 | 6.0 | | | |
| 21 | 5.0 | 5.0 | 5.0 | 5.5 | 5.0 | 5.5 | 6.5 | 6.0 | 6.0 | | | |
| 22 | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 7.0 | 6.5 | 6.5 | | | |
| 23 | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 6.5 | 6.5 | 6.5 | | | |
| 24 | 5.0 | 5.0 | 5.0 | 5.5 | 5.0 | 5.0 | 7.0 | 6.0 | 6.5 | | | |
| 25 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.5 | | | |
| 26 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 8.0 | 6.5 | 7.0 | | | |
| 27 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 9.0 | 7.5 | 8.0 | | | |
| 28 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 8.5 | 8.0 | 8.5 | | | |
| 29 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | --- | --- | --- | | | |
| 30 | --- | --- | --- | 5.0 | 5.0 | 5.0 | --- | --- | --- | | | |
| 31 | --- | --- | --- | 5.0 | 5.0 | 5.0 | --- | --- | --- | | | |
| MONTH | --- | --- | --- | 5.5 | 4.5 | 5.0 | 9.0 | 5.0 | 6.5 | | | |

| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
| 1 | | | | --- | --- | --- | 10.5 | 9.5 | 10.0 | 11.5 | 11.0 | 11.0 |
| 2 | | | | --- | --- | --- | 11.0 | 10.0 | 10.5 | 12.0 | 11.0 | 11.5 |
| 3 | | | | 9.5 | 8.5 | 9.0 | 10.5 | 9.5 | 10.0 | 11.5 | 11.0 | 11.0 |
| 4 | | | | 10.5 | 9.0 | 9.5 | 10.5 | 9.5 | 10.0 | 11.5 | 11.0 | 11.0 |
| 5 | | | | 10.0 | 9.0 | 9.5 | 10.5 | 9.5 | 10.0 | 11.5 | 11.0 | 11.5 |
| 6 | | | | 10.0 | 9.0 | 9.5 | 11.0 | 10.0 | 10.5 | 11.0 | 10.0 | 10.5 |
| 7 | | | | 11.5 | 9.0 | 10.0 | 10.5 | 10.0 | 10.0 | 12.0 | 10.5 | 11.0 |
| 8 | | | | 11.0 | 9.0 | 10.0 | 11.0 | 10.5 | 11.0 | 12.0 | 10.5 | 11.0 |
| 9 | | | | 9.5 | 8.5 | 9.0 | 10.5 | 9.5 | 10.0 | 12.5 | 10.0 | 11.0 |
| 10 | | | | 9.0 | 8.5 | 9.0 | 11.0 | 10.0 | 10.5 | 12.0 | 11.0 | 11.5 |
| 11 | | | | 9.5 | 9.0 | 9.0 | 11.0 | 10.0 | 10.5 | 11.5 | 11.0 | 11.5 |
| 12 | | | | 9.5 | 8.5 | 8.5 | 11.5 | 10.0 | 10.5 | 12.0 | 11.0 | 11.5 |
| 13 | | | | 9.5 | 9.0 | 9.0 | 12.0 | 10.5 | 11.0 | 12.5 | 11.5 | 11.5 |
| 14 | | | | 9.5 | 8.5 | 9.0 | 11.5 | 11.0 | 11.5 | 12.0 | 10.5 | 11.0 |
| 15 | | | | 9.5 | 9.0 | 9.0 | 11.0 | 10.0 | 10.5 | 10.5 | 10.0 | 10.5 |
| 16 | | | | 9.5 | 8.5 | 9.0 | 11.5 | 10.5 | 11.0 | 11.0 | 10.0 | 10.5 |
| 17 | | | | 9.5 | 8.5 | 9.0 | 12.0 | 11.0 | 11.0 | 11.0 | 10.5 | 10.5 |
| 18 | | | | 10.0 | 9.0 | 9.5 | 11.5 | 11.0 | 11.5 | 11.0 | 10.5 | 11.0 |
| 19 | | | | 11.0 | 9.5 | 10.0 | 11.0 | 10.5 | 11.0 | 11.5 | 10.5 | 11.0 |
| 20 | | | | 10.5 | 9.0 | 10.0 | 11.5 | 11.0 | 11.5 | 11.5 | 10.5 | 11.0 |
| 21 | | | | 10.5 | 9.5 | 10.0 | 11.0 | 10.0 | 10.5 | 11.5 | 10.5 | 11.0 |
| 22 | | | | 10.5 | 9.0 | 9.5 | 11.0 | 10.5 | 10.5 | 11.5 | 10.5 | 11.0 |
| 23 | | | | 10.0 | 9.5 | 10.0 | 11.5 | 10.5 | 11.0 | 11.0 | 10.5 | 10.5 |
| 24 | | | | 9.5 | 9.0 | 9.5 | 11.5 | 10.0 | 10.5 | 11.0 | 11.0 | 11.0 |
| 25 | | | | 10.5 | 9.0 | 9.5 | 11.0 | 10.0 | 10.5 | 11.0 | 10.5 | 10.5 |
| 26 | | | | 11.0 | 9.0 | 10.0 | 11.5 | 11.0 | 11.5 | 12.0 | 10.5 | 11.0 |
| 27 | | | | 11.0 | 9.5 | 10.0 | 12.5 | 11.5 | 11.5 | 12.0 | 10.5 | 11.0 |
| 28 | | | | 11.0 | 9.5 | 10.5 | 11.5 | 11.0 | 11.5 | 11.5 | 11.0 | 11.5 |
| 29 | | | | 11.0 | 9.5 | 10.0 | 11.5 | 10.5 | 11.0 | 11.5 | 10.5 | 11.5 |
| 30 | | | | 10.0 | 9.5 | 9.5 | 11.0 | 10.5 | 11.0 | 12.0 | 10.5 | 11.0 |
| 31 | | | | 10.5 | 10.0 | 10.5 | 12.0 | 10.5 | 11.0 | --- | --- | --- |
| MONTH | | | | 11.5 | 8.5 | 9.5 | 12.5 | 9.5 | 10.5 | 12.5 | 10.0 | 11.0 |
| YEAR | 12.5 | 4.5 | [illegible] | | | | | | | | | |

## 14238010 COWLITZ RIVER ABOVE MILL CREEK HATCHERY NEAR SALKUM, WA

LOCATION.--Lat 46°30'34", long 122°37'07", in NE¼SE¼ sec.24, T.12 N., R.1 E., Lewis County, Hydrologic Unit 17080005. Sampling site about 2,000 ft (610 m) below gage and 1,000 ft (305 m) bove fish barrier dam.

PERIOD OF RECORD.--Water years 1974 to current year.

### WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 18... | 1250 | 10500 | 44 | 6.8 | 7.4 | 1 | 11.4 | 104 |
| JAN , 1974 | | | | | | | | |
| 18... | 1120 | 16200 | -- | -- | 5.6 | -- | 12.6 | -- |
| 29... | 1500 | 23700 | -- | -- | 4.6 | -- | 15.4 | -- |
| FEB | | | | | | | | |
| 20... | 1214 | 6960 | 44 | 6.8 | 5.3 | 7 | 12.5 | 17 |
| APR | | | | | | | | |
| 03... | 1030 | *3870 | -- | -- | 6.4 | -- | 12.9 | -- |
| JUN | | | | | | | | |
| 18... | 1220 | 22200 | 46 | 7.6 | 9.7 | 1 | 12.8 | 1 |
| DEC | | | | | | | | |
| 10... | 1210 | *6400 | 50 | 7.0 | 9.5 | 1 | 10.6 | 30 |
| JAN , 1975 | | | | | | | | |
| 21... | 1215 | *15700 | -- | -- | 6.2 | -- | 13.0 | -- |
| MAR | | | | | | | | |
| 05... | 1205 | 9300 | 46 | 6.8 | 6.0 | 2 | 12.3 | 37 |
| MAY | | | | | | | | |
| 07... | 1330 | 3700 | 40 | 7.8 | 8.2 | 1 | 12.8 | <1 |
| AUG | | | | | | | | |
| 06... | 0820 | 1650 | 51 | 7.1 | 10.8 | 1 | 11.5 | 13 |
| 07... | 1030 | 2140 | 50 | 7.0 | 11.2 | 1 | 11.1 | 3 |
| NOV | | | | | | | | |
| 19... | 1235 | 10400 | 36 | 7.0 | 8.4 | 1 | 11.0 | 136 |
| DEC | | | | | | | | |
| 02... | 1155 | 31200 | -- | -- | 8.0 | 6 | 13.8 | -- |
| FEB , 1976 | | | | | | | | |
| 18... | 1205 | 10700 | 39 | 7.5 | 5.4 | 6 | 12.3 | 18 |
| MAY | | | | | | | | |
| 18... | 1205 | 3120 | 46 | 7.5 | 10.0 | 2 | 12.0 | 28 |
| SEP | | | | | | | | |
| 21... | 1335 | 3290 | 41 | 7.0 | 10.9 | 0 | 10.4 | 400 |

| DATE | SUSPENDED SOLIDS (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 18... | -- | .16 | .01 | .17 | .04 | .10 | .02 | .01 |
| JAN , 1974 | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 20... | -- | .15 | .01 | .16 | .18 | .33 | .05 | .03 |
| APR | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | |
| 18... | -- | -- | -- | .04 | -- | -- | .01 | -- |
| DEC | | | | | | | | |
| 10... | -- | -- | -- | .08 | -- | -- | .01 | -- |
| JAN , 1975 | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | |
| 05... | -- | -- | -- | .17 | -- | -- | .03 | -- |
| MAY | | | | | | | | |
| 07... | -- | -- | -- | .34 | -- | -- | .01 | -- |
| AUG | | | | | | | | |
| 06... | -- | -- | -- | .02 | -- | -- | .01 | -- |
| 07... | -- | -- | -- | .02 | -- | -- | .01 | -- |
| NOV | | | | | | | | |
| 19... | -- | -- | -- | .08 | -- | -- | .01 | -- |
| DEC | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB , 1976 | | | | | | | | |
| 18... | -- | -- | -- | .14 | -- | -- | .02 | -- |
| MAY | | | | | | | | |
| 18... | -- | -- | -- | .06 | -- | -- | .01 | -- |
| SEP | | | | | | | | |
| 21... | 11 | -- | -- | .00 | -- | -- | .01 | -- |

* Mean daily discharge.

## 14238020 COWLITZ RIVER BELOW MILL CREEK HATCHERY NEAR SALKUM, WA

LOCATION.--Lat 46°30'31", long 122°37'15", in NW¼SE¼ sec.24, T.12 N., R.1 E., Lewis County, Hydrologic Unit 17080005. Sampling site about 1,000 ft (305 m) below fish barrier dam.

PERIOD OF RECORD.--Water years 1974 to current year.

### WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 18... | 1310 | 10500 | 45 | 6.8 | 7.4 | 2 | 11.8 | 73 |
| JAN , 1974 | | | | | | | | |
| 18... | 1145 | 17700 | -- | -- | 5.7 | -- | 12.8 | -- |
| 29... | 1515 | 23700 | -- | -- | 4.6 | -- | 14.7 | -- |
| FEB | | | | | | | | |
| 20... | 1240 | 6360 | 45 | 6.8 | 5.2 | 10 | 12.9 | 22 |
| APR | | | | | | | | |
| 03... | 1050 | *3870 | -- | -- | 6.4 | -- | 12.8 | -- |
| JUN | | | | | | | | |
| 18... | 1255 | 22200 | 47 | 7.6 | 9.8 | 1 | 12.6 | 35 |
| DEC | | | | | | | | |
| 10... | 1230 | *6400 | 50 | 7.0 | 9.5 | 1 | 10.4 | 4 |
| JAN , 1975 | | | | | | | | |
| 21... | 1315 | *15700 | -- | -- | 6.2 | -- | 12.9 | -- |
| MAR | | | | | | | | |
| 05... | 1130 | 9300 | 47 | 6.8 | 6.0 | 2 | 12.6 | 48 |
| MAY | | | | | | | | |
| 07... | 1255 | 4050 | 50 | 7.6 | 7.8 | 0 | 12.4 | 12 |
| AUG | | | | | | | | |
| 06... | 0850 | 1650 | 50 | 7.4 | 10.7 | 1 | 11.5 | 17 |
| 07... | 1100 | 2140 | 51 | 7.1 | 11.1 | 1 | 11.2 | 12 |
| NOV | | | | | | | | |
| 19... | 1300 | 10400 | 36 | 7.0 | 8.8 | 1 | 11.8 | 127 |
| DEC | | | | | | | | |
| 02... | 1220 | 31200 | -- | -- | 8.0 | 6 | 14.2 | -- |
| FEB , 1976 | | | | | | | | |
| 18... | 1225 | 10700 | 39 | 7.3 | 5.4 | 5 | 12.8 | 23 |
| MAY | | | | | | | | |
| 18... | 1230 | 2880 | 46 | 7.6 | 11.2 | 2 | 11.9 | 9 |
| SEP | | | | | | | | |
| 21... | 1315 | 3300 | 41 | 6.9 | 11.3 | 0 | 11.1 | B12 |

| DATE | SUSPENDED SOLIDS (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 18... | -- | .17 | .01 | .18 | .04 | .06 | .01 | .01 |
| JAN , 1974 | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 20... | -- | .15 | .01 | .16 | .18 | .19 | .02 | .02 |
| APR | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | |
| 18... | -- | -- | -- | .05 | -- | -- | .01 | -- |
| DEC | | | | | | | | |
| 10... | -- | -- | -- | .09 | -- | -- | .02 | -- |
| JAN , 1975 | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | |
| 05... | -- | -- | -- | .17 | -- | -- | .03 | -- |
| MAY | | | | | | | | |
| 07... | -- | -- | -- | .06 | -- | -- | .02 | -- |
| AUG | | | | | | | | |
| 06... | -- | -- | -- | .02 | -- | -- | .01 | -- |
| 07... | -- | -- | -- | .02 | -- | -- | .01 | -- |
| NOV | | | | | | | | |
| 19... | -- | -- | -- | .09 | -- | -- | .02 | -- |
| DEC | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB , 1976 | | | | | | | | |
| 18... | -- | -- | -- | .15 | -- | -- | .02 | -- |
| MAY | | | | | | | | |
| 18... | -- | -- | -- | .08 | -- | -- | .02 | -- |
| SEP | | | | | | | | |
| 21... | 4 | -- | -- | .00 | -- | -- | .01 | -- |

* Mean daily discharge.
B Results based upon colony counts outside the ideal range.

## 14238550 COWLITZ RIVER ABOVE BLUE CREEK NEAR TOLEDO, WA

LOCATION.--Lat 46°29'02", long 122°43'47", in SE¼NW¼ sec.31, T.12 N., R.1 E., Lewis County, Hydrologic Unit 17080005, 0.5 mi (0.8 km) upstream from Blue Creek and 6.2 mi (10.0 km) northeast of Toledo.

PERIOD OF RECORD.--Water years 1974 to current year.

### WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 18... | 1205 | 10500 | 45 | 7.0 | 7.4 | 2 | 12.2 | 142 |
| JAN , 1974 | | | | | | | | |
| 18... | 1218 | 13700 | -- | -- | 5.8 | -- | 12.3 | -- |
| 29... | 1520 | 23700 | -- | -- | 5.0 | -- | 14.2 | -- |
| FEB | | | | | | | | |
| 20... | 1125 | 6500 | 48 | 6.8 | 5.2 | 9 | 13.0 | 13 |
| APR | | | | | | | | |
| 03... | 1130 | *3870 | -- | -- | 7.8 | -- | 12.1 | -- |
| JUN | | | | | | | | |
| 18... | 1150 | 22200 | 48 | 7.7 | 9.8 | 1 | 12.5 | 12 |
| DEC | | | | | | | | |
| 10... | 1130 | *6400 | 50 | 6.8 | 9.5 | 1 | 11.4 | 130 |
| JAN , 1975 | | | | | | | | |
| 21... | 1400 | *15700 | -- | -- | 6.3 | -- | 12.9 | -- |
| MAR | | | | | | | | |
| 05... | 1050 | 9320 | 49 | 7.2 | 5.8 | 1 | 12.6 | 22 |
| MAY | | | | | | | | |
| 07... | 1135 | 4200 | 46 | 8.0 | 8.2 | 1 | 12.6 | 40 |
| AUG | | | | | | | | |
| 06... | 0930 | 1650 | 49 | 7.3 | 12.1 | 1 | 11.1 | 24 |
| 07... | 1200 | 2140 | 51 | 7.3 | 12.2 | 1 | 11.2 | 29 |
| NOV | | | | | | | | |
| 19... | 1150 | 10400 | 36 | 7.0 | 8.3 | 1 | 12.2 | 173 |
| DEC | | | | | | | | |
| 02... | 1125 | 33800 | -- | -- | 8.0 | 6 | 13.4 | -- |
| FEB , 1976 | | | | | | | | |
| 18... | 1130 | 10700 | 40 | 7.5 | 5.4 | 6 | 12.8 | 16 |
| MAY | | | | | | | | |
| 18... | 1130 | 3320 | 46 | 7.7 | 12.8 | 1 | 11.9 | -- |
| SEP | | | | | | | | |
| 21... | 1230 | *3400 | 43 | 7.0 | 12.0 | 0 | 11.4 | B5 |

| DATE | SUSPENDED SOLIDS (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 18... | -- | .14 | .01 | .15 | .04 | .08 | .01 | .00 |
| JAN , 1974 | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 20... | -- | .17 | .01 | .18 | .26 | .32 | .04 | .03 |
| APR | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | |
| 18... | -- | -- | -- | .04 | -- | -- | .01 | -- |
| DEC | | | | | | | | |
| 10... | -- | -- | -- | .08 | -- | -- | .01 | -- |
| JAN , 1975 | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | |
| 05... | -- | -- | -- | .17 | -- | -- | .01 | -- |
| MAY | | | | | | | | |
| 07... | -- | -- | -- | .09 | -- | -- | .01 | -- |
| AUG | | | | | | | | |
| 06... | -- | -- | -- | .02 | -- | -- | .06 | -- |
| 07... | -- | -- | -- | .02 | -- | -- | .01 | -- |
| NOV | | | | | | | | |
| 19... | -- | -- | -- | .11 | -- | -- | .01 | -- |
| DEC | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB , 1976 | | | | | | | | |
| 18... | -- | -- | -- | .15 | -- | -- | .03 | -- |
| MAY | | | | | | | | |
| 18... | -- | -- | -- | .04 | -- | -- | .01 | -- |
| SEP | | | | | | | | |
| 21... | 4 | -- | -- | .00 | -- | -- | .01 | -- |

* Mean daily discharge.
B Results based upon colony counts outside the ideal range.

## 14239050 COWLITZ RIVER NEAR TOLEDO, WA

LOCATION.--Lat 46°24'55", long 122°53'20", in NE¼NE¼ sec.26, T.11 N., R.2 W., Lewis County, Hydrologic Unit 17080005, at bridge on U.S. Highway 99, 2.2 mi (3.5 km) upstream from Lacamas Creek, 2.3 mi (3.7 km) downstream from Salmon Creek, 2.5 mi (4.0 km) southwest of Toledo and at river mile 29.9 (48.1 km).

PERIOD OF RECORD.--Water years 1962-66, 1974 to current year.

REMARKS.--No discharge records available.

### WATER QUALITY DATA, DECEMBER 1973 TO SEPTEMBER 1976

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) | IMMEDIATE COLIFORM (COL. PER 100 ML) | SUSPENDED SOLIDS (MG/L) |
|---|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | | |
| 18... | 1100 | 50 | 6.9 | 7.4 | 5 | 11.8 | 420 | -- |
| JAN , 1974 | | | | | | | | |
| 18... | 1430 | -- | -- | 6.2 | -- | 12.2 | -- | -- |
| 29... | 1430 | -- | -- | 5.0 | -- | 13.8 | -- | -- |
| FEB | | | | | | | | |
| 20... | 1040 | 54 | 7.0 | 5.1 | 10 | 12.6 | 80 | -- |
| APR | | | | | | | | |
| 03... | 1215 | -- | -- | 7.0 | -- | 12.0 | -- | -- |
| JUN | | | | | | | | |
| 18... | 1010 | 53 | 7.7 | 9.8 | 2 | 11.7 | 54 | -- |
| DEC | | | | | | | | |
| 10... | 1010 | 61 | 7.0 | 9.5 | 1 | 11.2 | 82 | -- |
| JAN , 1975 | | | | | | | | |
| 21... | 1530 | -- | -- | 6.4 | -- | 12.4 | -- | -- |
| MAR | | | | | | | | |
| 05... | 0950 | 56 | 7.2 | 5.2 | 1 | 12.3 | 57 | -- |
| MAY | | | | | | | | |
| 07... | 1040 | 51 | 7.6 | 7.6 | 1 | 12.4 | 14 | -- |
| AUG | | | | | | | | |
| 06... | 1020 | 80 | 7.1 | 11.6 | 0 | 10.9 | 29 | -- |
| 07... | 1215 | 80 | 7.0 | 12.2 | 1 | 10.9 | 90 | -- |
| NOV | | | | | | | | |
| 19... | 1045 | 47 | 7.1 | 8.1 | 2 | 11.8 | 145 | -- |
| DEC | | | | | | | | |
| 02... | 1030 | -- | -- | 8.5 | 20 | 12.6 | -- | -- |
| FEB , 1976 | | | | | | | | |
| 18... | 1030 | 40 | 7.4 | 5.6 | 9 | 12.5 | 45 | -- |
| MAY | | | | | | | | |
| 18... | 1025 | 52 | 7.4 | 9.6 | 1 | 11.5 | 45 | -- |
| SEP | | | | | | | | |
| 21... | 1120 | 89 | 7.1 | 11.6 | 0 | 10.5 | 22 | 4 |

| DATE | TOTAL NITRATE (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|
| DEC , 1973 | | | | | | | |
| 18... | .17 | .01 | .18 | .04 | .10 | .02 | .01 |
| JAN , 1974 | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- |
| 29... | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | |
| 20... | .21 | .01 | .22 | .16 | .21 | .05 | .03 |
| APR | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | |
| 18... | -- | -- | .04 | -- | -- | .03 | -- |
| DEC | | | | | | | |
| 10... | -- | -- | .09 | -- | -- | .01 | -- |
| JAN , 1975 | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | |
| 05... | -- | -- | .19 | -- | -- | .01 | -- |
| MAY | | | | | | | |
| 07... | -- | -- | .04 | -- | -- | .02 | -- |
| AUG | | | | | | | |
| 06... | -- | -- | .02 | -- | -- | .01 | -- |
| 07... | -- | -- | .01 | -- | -- | .01 | -- |
| NOV | | | | | | | |
| 19... | -- | -- | .11 | -- | -- | .01 | -- |
| DEC | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- |
| FEB , 1976 | | | | | | | |
| 18... | -- | -- | .18 | -- | -- | .03 | -- |
| MAY | | | | | | | |
| 18... | -- | -- | .05 | -- | -- | .02 | -- |
| SEP | | | | | | | |
| 21... | -- | -- | .00 | -- | -- | .01 | -- |

## 14242500 TOUTLE RIVER NEAR SILVER LAKE, WA

LOCATION.--Lat 46°20'11", long 122°43'27", in NW¼SE¼ sec.19, T.10 N., R.1 E., Cowlitz County, Hydrologic Unit 17080005, on right bank, 0.8 mi (1.3 km) downstream from confluence of North and South Forks, 4.9 mi (7.9 km) northeast of Silver Lake, and at mile 16.4 (26.4 km).

DRAINAGE AREA.--474 mi² (1,228 km²).

PERIOD OF RECORD.--September 1909 to August 1912, October 1919 to October 1921, May 1922 to December 1923, September 1929 to current year. Published as "near Castle Rock" 1909-12. Water temperatures October 1950 to September 1962, October 1963 to September 1972.

REVISED RECORDS.--WSP 292: 1909. WSP 754: 1930-32. WSP 1348: 1910(M), 1930-32(M), 1945.

GAGE.--Water-stage recorder. Datum of gage is 407.3 ft (124.15 m) above mean sea level (river-profile survey). Prior to Aug. 4, 1912, nonrecording gage at site 2.0 mi (3.2 km) downstream at datum 307.3 ft (93.67 m) above mean sea level, unadjusted. Oct. 9, 1919, to Dec. 14, 1923, water-stage recorder at site 300 ft (91 m) downstream at different datum. Sept. 25, 1929, to Apr. 17, 1952, water-stage recorder at two sites within 50 ft (15 m) of present site at present datum.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--52 years (water years 1910-11, 1920-21, 1923, 1930-76) 2,080 ft³/s (58.91 m³/s) 59.59 in/yr (1,514 mm/yr), 1,507,000 acre-ft/yr (1,860 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft³/s (1,080 m³/s) Jan. 20, 1972, gage height, 20.90 ft (6.370 m), from rating curve extended above 26,000 ft³/s (736 m³/s) on basis of slope-area measurement of peak flow; maximum gage height recorded, 22.7 ft (6.92 m) Dec. 23, 1933; minimum discharge, 240 ft³/s (6.80 m³/s) Nov. 21, 1929.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 9,000 ft³/s (255 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 30 | 1000 | 10,500 | 297 | 9.10 | 2.774 | Dec. 7 | 1645 | 13,200 | 374 | 10.78 | 3.286 |
| Dec. 1 | 2000 | 27,600 | 782 | 17.33 | 5.282 | Dec. 26 | 1830 | 9,350 | 265 | 8.32 | 2.536 |
| Dec. 4 | 0730 | *32,700 | 926 | *19.14 | 5.834 | Jan. 15 | 1730 | 16,900 | 479 | 12.84 | 3.914 |

Minimum discharge, 372 ft³/s (10.5 m³/s) Oct. 2, gage height, 1.64 ft (0.500 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 378 | 4170 | 15400 | 3980 | 2150 | 2720 | 2580 | 3210 | 2120 | 1460 | 710 | 664 |
| 2 | 379 | 3500 | 20300 | 3460 | 2040 | 2320 | 2320 | 4830 | 2190 | 1320 | 700 | 643 |
| 3 | 513 | 3510 | 21200 | 3120 | 1940 | 2040 | 2150 | 4250 | 1970 | 1210 | 720 | 657 |
| 4 | 795 | 3170 | 25900 | 4030 | 1800 | 1830 | 2080 | 3600 | 1790 | 1220 | 690 | 643 |
| 5 | 649 | 2780 | 13500 | 5180 | 1650 | 1680 | 2130 | 3420 | 1660 | 1230 | 690 | 650 |
| 6 | 917 | 3010 | 8590 | 4480 | 1590 | 1590 | 2250 | 3190 | 1590 | 1230 | 860 | 744 |
| 7 | 650 | 3730 | 11600 | 4450 | 1530 | 1520 | 2290 | 3010 | 1560 | 1320 | 1100 | 678 |
| 8 | 642 | 3860 | 10700 | 5610 | 1490 | 1440 | 2870 | 3210 | 1610 | 2130 | 1050 | 629 |
| 9 | 648 | 3530 | 7750 | 5240 | 1450 | 1400 | 2940 | 3420 | 1600 | 1660 | 900 | 594 |
| 10 | 661 | 3020 | 5950 | 4610 | 1370 | 1430 | 2680 | 3550 | 1590 | 1410 | 816 | 574 |
| 11 | 621 | 2570 | 4880 | 5660 | 1360 | 1440 | 3370 | 3490 | 1590 | 1280 | 752 | 568 |
| 12 | 577 | 2260 | 4090 | 5150 | 1840 | 1340 | 3040 | 2900 | 1660 | 1250 | 713 | 587 |
| 13 | 563 | 2070 | 3620 | 4380 | 1820 | 1330 | 2760 | 2800 | 1640 | 1170 | 699 | 576 |
| 14 | 575 | 3410 | 3120 | 10100 | 1880 | 1470 | 2550 | 2710 | 1470 | 1090 | 713 | 685 |
| 15 | 654 | 7320 | 3060 | 14900 | 1830 | 1400 | 2870 | 2440 | 1480 | 1060 | 889 | 720 |
| 16 | 637 | 6140 | 2940 | 12000 | 3750 | 1440 | 2680 | 2340 | 2180 | 1070 | 1110 | 629 |
| 17 | 663 | 4710 | 2640 | 9400 | 4390 | 1710 | 2480 | 2390 | 2190 | 1100 | 943 | 601 |
| 18 | 1060 | 3700 | 2450 | 6800 | 4700 | 2270 | 2310 | 2120 | 2040 | 1050 | 943 | 580 |
| 19 | 1010 | 3080 | 2280 | 5000 | 3670 | 2370 | 2150 | 1980 | 1990 | 988 | 832 | 574 |
| 20 | 1040 | 2630 | 2120 | 4070 | 3040 | 2260 | 2690 | 1950 | 1840 | 934 | 880 | 562 |
| 21 | 1180 | 2300 | 1990 | 3390 | 2600 | 2180 | 2610 | 1760 | 1680 | 916 | 832 | 550 |
| 22 | 1310 | 2150 | 2130 | 3300 | 2310 | 2790 | 2400 | 1720 | 1580 | 872 | 776 | 574 |
| 23 | 1140 | 2680 | 2820 | 3120 | 2310 | 2940 | 2250 | 1710 | 1470 | 848 | 736 | 574 |
| 24 | 1010 | 2640 | 4380 | 2760 | 2420 | 4290 | 2770 | 1800 | 1400 | 848 | 720 | 544 |
| 25 | 1310 | 2700 | 4270 | 2500 | 2820 | 4360 | 2710 | 2040 | 1360 | 848 | 961 | 532 |
| 26 | 2190 | 4110 | 7840 | 2310 | 2880 | 3640 | 2550 | 1800 | 1280 | 816 | 889 | 520 |
| 27 | 2250 | 4750 | 7600 | 3150 | 3890 | 3310 | 2360 | 2060 | 1200 | 784 | 784 | 514 |
| 28 | 2600 | 3970 | 5880 | 2970 | 3980 | 3100 | 2280 | 2040 | 1200 | 744 | 744 | 514 |
| 29 | 5810 | 3240 | 5480 | 2740 | 3260 | 2770 | 2280 | 1950 | 1300 | 700 | 706 | 514 |
| 30 | 9590 | 4430 | 5820 | 2500 | --- | 2580 | 2610 | 2150 | 1320 | 720 | 685 | 508 |
| 31 | 6050 | --- | 4810 | 2290 | --- | 2870 | --- | 2090 | --- | 720 | 671 | --- |
| TOTAL | 48072 | 105140 | 225110 | 152650 | 71760 | 69830 | 76010 | 81930 | 49550 | 34018 | 25214 | 17900 |
| MEAN | 1551 | 3505 | 7262 | 4924 | 2474 | 2253 | 2534 | 2643 | 1652 | 1097 | 813 | 597 |
| MAX | 9590 | 7320 | 25900 | 14900 | 4700 | 4360 | 3370 | 4830 | 2190 | 2130 | 1110 | 744 |
| MIN | 378 | 2070 | 1990 | 2290 | 1360 | 1330 | 2080 | 1710 | 1200 | 700 | 671 | 508 |
| CFSM | 3.27 | 7.39 | 15.3 | 10.4 | 5.22 | 4.75 | 5.35 | 5.58 | 3.49 | 2.31 | 1.72 | 1.26 |
| IN. | 3.77 | 8.25 | 17.67 | 11.98 | 5.63 | 5.48 | 5.97 | 6.43 | 3.89 | 2.67 | 1.98 | 1.40 |
| AC-FT | 95350 | 208500 | 446500 | 302800 | 142300 | 138500 | 150800 | 162500 | 98280 | 67470 | 50010 | 35500 |

CAL YR 1975 TOTAL 948841 MEAN 2600 MAX 25900 MIN 378 CFSM 5.49 IN 74.47 AC-FT 1882000
WTR YR 1976 TOTAL 957184 MEAN 2615 MAX 25900 MIN 378 CFSM 5.52 IN 75.12 AC-FT 1899000

## 14243000 COWLITZ RIVER AT CASTLE ROCK, WA

LOCATION.--Lat 46°16'30", long 122°54'48", in SW¼SE¼ sec.10, T.9 N., R.2 W., Cowlitz County, Hydrologic Unit 17080005, on right bank 40 ft (12 m) downstream from Arkansas Valley Road bridge in Castle Rock, 2.7 mi (4.3 km) downstream from Toutle River and at mile 17.3 (27.8 km).

DRAINAGE AREA.--2,238 mi² (5,796 km²).

## WATER DISCHARGE RECORDS

PERIOD OF RECORD.--December 1926 to current year.

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1638: 1947(P), 1951.

CORRECTIONS.--WRD Wash 1974: 1973 adjusted figures.

GAGE.--Water-stage recorder. Datum of gage is 20.20 ft (6.157 m) above mean sea level. Prior to Dec. 18, 1933, nonrecording gage at site 2 mi (3.2 km) upstream at datum 14.93 ft (4.551 m) higher. Dec. 18, 1933, to June 13, 1934, nonrecording gage and June 14 to Sept.30, 1934, water-stage recorder, at present site at datum 5 ft (1.5 m) higher.

REMARKS.--Records excellent. Flow regulated by Riffe Lake (see sta 14234800) at mile 65.5 (105.4 km), and Mayfield Reservoir (see sta 14237800) at mile 52.0 (83.7 km). Minor diversions for domestic and farm use above station.

AVERAGE DISCHARGE.--49 years (water years 1928-76), 9,380 ft³/s (265.6 m³/s), 56.92 in/yr (1,446 mm/yr), 6,796,000 acre-ft/yr (8,380 hm³/yr), adjusted for storage in Mayfield Reservoir since April 1962, and Riffe Lake since April 1968.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 139,000 ft³/s (3,940 m³/s) Dec. 23, 1933, gage height, 31.6 ft (9.63 m) present datum, from rating curve extended above 80,000 ft³/s (2,270 m³/s); minimum, 998 ft³/s (28.3 m³/s) Nov. 7, 8, 1935.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 86,700 ft³/s (2,460 m³/s) Dec. 4, gage height, 24.53 ft (7.477 m); minimum, 2,830 ft³/s (80.1 m³/s) Oct. 1, gage height, 8.14 ft (2.481 m); minimum daily, 3,110 ft³/s) 88.1 m³/s Aug. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3200 | 15200 | 34600 | 20200 | 9120 | 14200 | 12800 | 6500 | 11000 | 9150 | 5720 | 3700 |
| 2 | 3250 | 13900 | 64900 | 18100 | 11700 | 13100 | 11900 | 8700 | 9330 | 8980 | 5030 | 3650 |
| 3 | 3660 | 14000 | 65700 | 15800 | 12600 | 13200 | 10300 | 9190 | 7970 | 7730 | 4000 | 3430 |
| 4 | 4350 | 13600 | 80600 | 15900 | 12400 | 12400 | 8800 | 8520 | 6590 | 5780 | 3450 | 3280 |
| 5 | 3980 | 12400 | 80600 | 23400 | 12100 | 11600 | 8490 | 7880 | 6710 | 4430 | 3110 | 3300 |
| 6 | 4720 | 13600 | 53300 | 18400 | 12000 | 11700 | 8730 | 7370 | 6200 | 4350 | 3130 | 3400 |
| 7 | 4500 | 15500 | 45900 | 16000 | 10800 | 11100 | 8840 | 6830 | 5540 | 4520 | 3500 | 3400 |
| 8 | 4750 | 16600 | 42200 | 19000 | 10800 | 11300 | 9080 | 6410 | 4700 | 6800 | 4880 | 3900 |
| 9 | 5130 | 16500 | 49600 | 20000 | 10800 | 11500 | 9710 | 6890 | 4730 | 11100 | 4030 | 3680 |
| 10 | 5040 | 15000 | 49500 | 22000 | 10700 | 10500 | 9080 | 7640 | 4670 | 11700 | 4150 | 3700 |
| 11 | 3930 | 14000 | 36100 | 23200 | 10700 | 10800 | 9050 | 6860 | 4730 | 8310 | 3800 | 3500 |
| 12 | 3440 | 13400 | 22000 | 24400 | 11600 | 11200 | 9400 | 6050 | 4760 | 8030 | 3750 | 3250 |
| 13 | 4290 | 13000 | 23600 | 21200 | 11500 | 10700 | 9120 | 5720 | 4760 | 7820 | 3800 | 3280 |
| 14 | 4440 | 14100 | 23400 | 28600 | 10100 | 10900 | 8560 | 5870 | 4460 | 7730 | 3750 | 3580 |
| 15 | 4570 | 18900 | 22000 | 46300 | 11100 | 10400 | 9540 | 5540 | 4170 | 8880 | 3600 | 4370 |
| 16 | 4680 | 18900 | 20600 | 51300 | 10400 | 10800 | 9500 | 5510 | 4940 | 9260 | 4580 | 4550 |
| 17 | 4140 | 17700 | 20200 | 34700 | 17000 | 10100 | 8730 | 5690 | 5510 | 8100 | 4050 | 4610 |
| 18 | 4940 | 15700 | 19900 | 28400 | 19500 | 10600 | 6800 | 5630 | 5840 | 7520 | 3580 | 3980 |
| 19 | 4740 | 14500 | 19700 | 24400 | 16200 | 12000 | 6560 | 5060 | 5180 | 7340 | 3630 | 3630 |
| 20 | 5260 | 13800 | 20300 | 22100 | 14000 | 12200 | 7280 | 7130 | 5390 | 7070 | 3900 | 3580 |
| 21 | 7130 | 13200 | 20200 | 20700 | 12400 | 12100 | 8880 | 7250 | 5450 | 5930 | 3880 | 3750 |
| 22 | 7660 | 13000 | 19500 | 20000 | 11300 | 12600 | 8280 | 6380 | 5750 | 6020 | 3800 | 4030 |
| 23 | 6690 | 13700 | 20800 | 20600 | 11200 | 13600 | 7910 | 6380 | 5720 | 5960 | 3480 | 4100 |
| 24 | 8450 | 13700 | 24500 | 20000 | 12200 | 17500 | 7850 | 6650 | 6290 | 6410 | 3450 | 3680 |
| 25 | 8680 | 13700 | 24500 | 18600 | 14300 | 19700 | 8380 | 7310 | 7820 | 6140 | 3830 | 3530 |
| 26 | 10000 | 15300 | 30000 | 17000 | 15200 | 16800 | 7880 | 8170 | 8940 | 7100 | 4050 | 3530 |
| 27 | 10400 | 16800 | 35300 | 11200 | 16700 | 15800 | 6590 | 7880 | 8840 | 6890 | 3730 | 3530 |
| 28 | 12200 | 15600 | 30000 | 11100 | 18000 | 14500 | 6050 | 8590 | 8840 | 6650 | 3630 | 3550 |
| 29 | 15800 | 14400 | 26400 | 10100 | 16000 | 13000 | 10300 | 10500 | 8940 | 5300 | 3600 | 3530 |
| 30 | 22600 | 15600 | 27000 | 9050 | --- | 13000 | 8910 | 11500 | 9010 | 4940 | 3500 | 3530 |
| 31 | 18300 | --- | 25700 | 9120 | --- | 13400 | --- | 10800 | --- | 6050 | 3700 | --- |
| TOTAL | 214920 | 445300 | 1078600 | 660870 | 372420 | 392300 | 263300 | 226400 | 192780 | 221990 | 120090 | 110530 |
| MEAN | 6933 | 14840 | 34790 | 21320 | 12840 | 12650 | 8777 | 7303 | 6426 | 7161 | 3874 | 3684 |
| MAX | 22600 | 18900 | 80600 | 51300 | 19500 | 19700 | 12800 | 11500 | 11000 | 11700 | 5720 | 4610 |
| MIN | 3200 | 12400 | 19500 | 9050 | 9120 | 10100 | 6050 | 5060 | 4170 | 4350 | 3110 | 3250 |
| AC-FT | 426300 | 883300 | 2139000 | 1311000 | 738700 | 778100 | 522300 | 449100 | 382400 | 440300 | 238200 | 219200 |
| † | -111,453 | -83,458 | -79,768 | +19,080 | -145,025 | -265,238 | +98,677 | +432,975 | +177,108 | -9,996 | +31,223 | -58,020 |
| MEAN‡ | 5,119 | 13,440 | 33,480 | 21,630 | 10,320 | 8,340 | 10,440 | 14,340 | 9,405 | 6,997 | 4,380 | 2,710 |
| CFSM‡ | 2.29 | 6.01 | 15.0 | 9.66 | 4.61 | 3.73 | 4.66 | 6.41 | 4.20 | 3.13 | 1.96 | 1.21 |
| IN.‡ | 2.64 | 6.70 | 17.25 | 11.14 | 4.97 | 4.30 | 5.20 | 7.39 | 4.69 | 3.61 | 2.26 | 1.35 |
| AC-FT‡ | 314,800 | 799,800 | 2,059,000 | 1,330,000 | 593,700 | 512,900 | 621,000 | 882,100 | 559,500 | 430,300 | 269,400 | 161,200 |

CAL YR 1975: TOTAL 4,345,030 MEAN 11,900 MAX 80,600 MIN 2,840 AC-FT 8,618,000
DO......: MEAN‡ 11,900 CFSM‡ 5.32 IN.‡ 72.17 AC-FT‡ 8,614,000
WTR YR 1976: TOTAL 4,299,500 MEAN 11,750 MAX 80,600 MIN 3,110 AC-FT 8,528,000
DO......: MEAN‡ 11,750 CFSM‡ 5.25 IN.‡ 71.50 AC-FT‡ 8,534,000

† Change in contents, in acre-feet, in Riffe Lake and Mayfield Reservoir.
‡ Adjusted for change in contents in Riffe Lake and Mayfield Reservoir.

## 14243000 COWLITZ RIVER AT CASTLE ROCK, WA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950-73, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August 1950 to September 1973.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-CORALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 14... | 0950 | 3480 | 84 | 6.8 | 11.0 | 13 | 5 | 11.3 |
| 20... | 1200 | 4650 | 80 | 7.0 | 11.1 | 25 | 5 | 11.7 |
| NOV | | | | | | | | |
| 03... | 0945 | 14100 | 51 | 7.1 | 10.5 | 33 | 9 | 11.2 |
| 17... | 1115 | 17800 | 67 | 7.2 | 7.2 | 46 | 8 | 12.1 |
| DEC | | | | | | | | |
| 01... | 1030 | 25600 | 50 | 7.2 | 7.8 | 54 | 17 | 12.1 |
| 15... | 1055 | 22500 | 41 | 7.0 | 6.4 | 50 | 32 | 12.8 |
| JAN | | | | | | | | |
| 12... | 0945 | 25200 | 57 | 7.2 | 5.0 | 104 | 18 | 12.9 |
| 26... | 0950 | 18400 | 47 | 7.4 | 6.8 | 13 | 15 | 13.0 |
| FEB | | | | | | | | |
| 02... | 1000 | 11400 | 52 | 7.3 | 4.7 | 29 | 11 | 12.4 |
| 17... | 1030 | 15900 | 48 | 7.1 | 6.6 | 50 | 20 | 12.3 |
| MAR | | | | | | | | |
| 01... | 0925 | 14300 | 64 | 7.3 | 4.0 | 67 | 12 | 12.4 |
| 16... | 0945 | 10800 | 55 | 7.0 | 6.5 | 21 | 8 | 12.2 |
| APR | | | | | | | | |
| 05... | 0945 | 8380 | 56 | 7.1 | 7.5 | 17 | 5 | 11.5 |
| 19... | 1000 | 6740 | 59 | 7.1 | 8.5 | 25 | 5 | 11.5 |
| MAY | | | | | | | | |
| 03... | 1050 | 9260 | 45 | 7.6 | 9.4 | 38 | 9 | 12.0 |
| 17... | 0950 | 5600 | 55 | 7.3 | 10.5 | 13 | 4 | 11.1 |
| JUN | | | | | | | | |
| 01... | 1010 | 11400 | 60 | 7.2 | 8.8 | 14 | 8 | 12.3 |
| 14... | 1000 | 4490 | 70 | 7.6 | 13.0 | 17 | 7 | 11.8 |
| JUL | | | | | | | | |
| 06... | 1010 | 4460 | 80 | 7.5 | 15.5 | 13 | 9 | 10.9 |
| 19... | 1030 | 7280 | 64 | 7.5 | 11.9 | 8 | 3 | 11.5 |
| AUG | | | | | | | | |
| 02... | 1005 | 5510 | 78 | 6.7 | 12.4 | 8 | 1 | 10.6 |
| 16... | 0925 | 4640 | 139 | 7.5 | 12.3 | 17 | 2 | 10.8 |
| SEP | | | | | | | | |
| 07... | 0820 | 3350 | 100 | 7.5 | 12.4 | 13 | 2 | 10.6 |
| 27... | 0915 | 3520 | 110 | 7.5 | 13.8 | -- | 2 | 9.9 |

| DATE | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NON-CARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 14... | B400 | B4 | 23 | 0 | 7.1 | 1.3 | 6.4 | 2.7 | 29 |
| 20... | B1200 | B8 | 24 | 2 | 7.8 | 1.2 | 4.5 | 1.0 | 27 |
| NOV | | | | | | | | | |
| 03... | B650 | B22 | 30 | 6 | 4.8 | 4.3 | 2.9 | .7 | 29 |
| 17... | B700 | B32 | 19 | 1 | 5.7 | 1.1 | 3.0 | .8 | 22 |
| DEC | | | | | | | | | |
| 01... | B1800 | B80 | 15 | 0 | 4.5 | .8 | 3.5 | 1.0 | 20 |
| 15... | B550 | B14 | 19 | 0 | 5.6 | 1.1 | 2.6 | .6 | 23 |
| JAN | | | | | | | | | |
| 12... | B600 | B30 | 17 | 0 | 4.2 | 1.5 | 4.1 | .9 | 22 |
| 26... | B200 | B10 | 17 | 0 | 5.5 | .9 | 2.9 | 1.4 | 22 |
| FEB | | | | | | | | | |
| 02... | 180 | B2 | 21 | 0 | 5.9 | 1.4 | 4.0 | 1.3 | 25 |
| 17... | B700 | B15 | 17 | 0 | 4.6 | 1.3 | 2.9 | .9 | 23 |
| MAR | | | | | | | | | |
| 01... | B120 | B8 | 21 | 2 | 6.9 | 1.0 | 3.2 | 1.0 | 23 |
| 16... | 96 | B6 | 21 | 0 | 6.6 | 1.1 | 3.1 | .7 | 26 |
| APR | | | | | | | | | |
| 05... | 94 | 2 | 19 | 0 | 5.4 | 1.3 | 4.3 | .9 | 26 |
| 19... | B170 | 4 | 20 | 0 | 5.2 | 1.8 | 3.8 | .5 | 28 |
| MAY | | | | | | | | | |
| 03... | B400 | B32 | 18 | 0 | 4.7 | 1.4 | 3.9 | 1.0 | 22 |
| 17... | B250 | 4 | 17 | 0 | 4.9 | 1.1 | 3.4 | .6 | 22 |
| JUN | | | | | | | | | |
| 01... | 230 | 8 | 20 | 0 | 5.8 | 1.4 | 3.4 | .8 | 26 |
| 14... | B200 | B6 | 19 | 0 | 5.5 | 1.3 | 4.6 | 1.1 | 26 |
| JUL | | | | | | | | | |
| 06... | B150 | B8 | 22 | 0 | 6.4 | 1.4 | 5.3 | .9 | 29 |
| 19... | B130 | B2 | 22 | 2 | 7.3 | 1.0 | 3.8 | .5 | 25 |
| AUG | | | | | | | | | |
| 02... | -- | B15 | 23 | 5 | 6.9 | 1.3 | 4.8 | .6 | 22 |
| 16... | >1100 | B34 | 26 | 8 | 7.3 | 2.0 | -- | 1.2 | 22 |
| SEP | | | | | | | | | |
| 07... | B150 | <2 | 28 | 5 | 8.4 | 1.6 | 8.4 | .7 | 28 |
| 27... | 150 | B8 | 26 | 2 | 8.2 | 1.4 | 8.4 | .6 | 29 |

B Results based upon colony counts outside the ideal range.

## 14243000 COWLITZ RIVER AT CASTLE ROCK, WA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | ALKA-LINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 14... | 24 | 7.4 | 4.0 | 8.0 | .04 | .20 | .03 | .01 |
| 20... | 22 | 4.3 | 1.9 | 9.8 | .04 | .06 | .02 | .00 |
| NOV | | | | | | | | |
| 03... | 24 | 3.7 | 3.8 | 2.6 | .14 | .05 | .03 | .00 |
| 17... | 18 | 2.2 | 3.2 | 3.2 | .19 | .03 | .03 | .00 |
| DEC | | | | | | | | |
| 01... | 16 | 2.0 | 2.9 | 3.5 | .21 | .09 | .05 | .00 |
| 15... | 19 | 3.7 | 2.5 | 2.3 | .13 | .13 | .08 | .01 |
| JAN | | | | | | | | |
| 12... | 18 | 2.2 | 1.7 | 3.4 | .24 | .13 | .06 | .02 |
| 26... | 18 | 1.4 | 3.9 | 1.9 | .15 | .21 | .04 | .00 |
| FEB | | | | | | | | |
| 02... | 21 | 2.0 | 2.0 | 3.1 | .19 | .14 | .06 | .04 |
| 17... | 19 | 2.9 | 2.2 | 3.0 | .23 | .12 | .05 | .01 |
| MAR | | | | | | | | |
| 01... | 19 | 1.8 | 4.2 | 2.5 | .23 | .04 | .02 | .00 |
| 16... | 21 | 4.2 | 2.5 | 2.3 | .14 | .07 | .02 | .01 |
| APR | | | | | | | | |
| 05... | 21 | 3.3 | 2.1 | 3.1 | .12 | .04 | .01 | .01 |
| 19... | 23 | 3.6 | 1.9 | 3.7 | .08 | .07 | .02 | .00 |
| MAY | | | | | | | | |
| 03... | 18 | .9 | 1.3 | 2.3 | .08 | .11 | .03 | .01 |
| 17... | 18 | 1.8 | 2.2 | 3.4 | .03 | .05 | .01 | .00 |
| JUN | | | | | | | | |
| 01... | 21 | 2.6 | 2.9 | 3.1 | .09 | .11 | .02 | .00 |
| 14... | 21 | 1.0 | 2.4 | 4.7 | .05 | .08 | .02 | .00 |
| JUL | | | | | | | | |
| 06... | 24 | 1.5 | 2.6 | 7.9 | .13 | .08 | .02 | .00 |
| 19... | 21 | 1.3 | 1.8 | 4.7 | .06 | .06 | .01 | .00 |
| AUG | | | | | | | | |
| 02... | 18 | 7.0 | 2.8 | 6.4 | .04 | .05 | .06 | .00 |
| 16... | 18 | 1.1 | 5.0 | -- | .01 | .05 | .03 | .00 |
| SEP | | | | | | | | |
| 07... | 23 | 1.4 | 3.8 | 16 | .00 | .05 | .02 | .00 |
| 27... | 24 | 1.5 | 2.5 | 15 | .00 | .03 | .01 | .00 |

## 14245000 COWEMAN RIVER NEAR KELSO, WA

**LOCATION.**--Lat 46°07'42", long 122°50'14", in SE¼SW¼ sec.32, T.8 N., R.1 W., Cowlitz County, Hydrologic Unit 17080005, on right bank 3.4 mi (5.5 km) southeast of Kelso High School, 3.9 mi (6.3 km) downstream from Goble Creek, and at mile 7.5 (12.1 km).

**DRAINAGE AREA.**--119 mi² (308 km²).

**PERIOD OF RECORD.**--July 1950 to current year. Chemical analyses, see REMARKS. Water temperatures July 1950 to September 1972.

**GAGE.**--Water-stage recorder. Altitude of gage is 30 ft (9 m), from topographic map.

**REMARKS.**--Records good, except those for periods Dec. 4 to Jan. 20, which are fair. No regulation or diversion above station. Chemical analyses for the period October 1961 to September 1972, October 1974 to September 1975 collected at site 4.7 mi (7.6 km) downstream, published as 14245000 prior to October 1974 and 14245100 "at Kelso" thereafter.

**AVERAGE DISCHARGE.**--26 years, 439 ft³/s (12.43 m³/s), 50.10 in/yr (1,273 mm/yr), 318,100 acre-ft/yr (392 hm³/yr).

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 9,720 ft³/s (275 m³/s) Nov. 20, 1962, gage height, 14.10 ft (4.298 m) from rating curve extended above 3,900 ft³/s (110 m³/s) on basis of slope-area measurement at gage height 12.8 ft (3.90 m); minimum, 22 ft³/s (0.62 m³/s) Sept. 22, 1951; minimum gage height, 2.54 ft (0.774 m) Aug. 14, 15, 1975.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Feb. 24, 1950, reached a stage of 12.8 ft (3.90 m) from floodmarks, discharge, 7,730 ft³/s (219 m³/s) by slope-area measurement.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges above base of 2,600 ft³/s (73.6 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Dec. 1 | 2400 | 5,760 | 163 | 10.76 | 3.280 |
| Dec. 4 | 0700 | *6,400 | 181 | *11.40 | 3.475 |
| Dec. 7 | 1700 | 2,740 | 77.6 | 7.74 | 2.359 |
| Jan. 15 | 0700 | 3,890 | 110 | 8.89 | 2.710 |

Minimum discharge, 36 ft³/s (1.02 m³/s) Oct. 1, 2, gage height, 2.71 ft (0.826 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 36 | 635 | 3760 | 800 | 365 | 806 | 676 | 393 | 342 | 180 | 60 | 65 |
| 2 | 36 | 508 | 4520 | 670 | 338 | 652 | 595 | 588 | 334 | 120 | 61 | 65 |
| 3 | 61 | 460 | 4150 | 600 | 320 | 544 | 540 | 490 | 282 | 106 | 64 | 62 |
| 4 | 126 | 392 | 5140 | 1270 | 296 | 476 | 500 | 427 | 248 | 106 | 59 | 60 |
| 5 | 88 | 345 | 2630 | 1770 | 266 | 419 | 470 | 408 | 219 | 100 | 61 | 62 |
| 6 | 140 | 452 | 1590 | 1360 | 251 | 381 | 450 | 372 | 200 | 91 | 79 | 77 |
| 7 | 82 | 755 | 2300 | 1340 | 244 | 358 | 450 | 340 | 189 | 100 | 149 | 70 |
| 8 | 97 | 840 | 1970 | 1760 | 242 | 334 | 480 | 331 | 184 | 267 | 142 | 62 |
| 9 | 86 | 866 | 1340 | 1440 | 236 | 323 | 520 | 317 | 175 | 172 | 94 | 58 |
| 10 | 81 | 685 | 986 | 1170 | 223 | 324 | 460 | 322 | 161 | 138 | 80 | 55 |
| 11 | 74 | 532 | 765 | 1540 | 238 | 326 | 620 | 330 | 162 | 128 | 71 | 54 |
| 12 | 65 | 460 | 640 | 1490 | 488 | 299 | 540 | 275 | 179 | 120 | 66 | 57 |
| 13 | 63 | 408 | 565 | 1190 | 444 | 302 | 490 | 256 | 157 | 110 | 66 | 57 |
| 14 | 63 | 600 | 480 | 2700 | 516 | 391 | 450 | 244 | 142 | 98 | 77 | 97 |
| 15 | 89 | 1370 | 585 | 3700 | 553 | 348 | 700 | 221 | 148 | 92 | 131 | 88 |
| 16 | 79 | 1290 | 650 | 2580 | 1390 | 344 | 580 | 208 | 219 | 85 | 193 | 65 |
| 17 | 110 | 1080 | 590 | 1660 | 1620 | 384 | 520 | 207 | 196 | 84 | 145 | 63 |
| 18 | 197 | 785 | 524 | 1170 | 1640 | 484 | 520 | 191 | 164 | 84 | 115 | 63 |
| 19 | 155 | 615 | 472 | 890 | 1160 | 574 | 500 | 183 | 148 | 79 | 95 | 59 |
| 20 | 150 | 496 | 428 | 730 | 849 | 650 | 570 | 185 | 138 | 75 | 96 | 57 |
| 21 | 157 | 416 | 388 | 600 | 691 | 652 | 541 | 166 | 130 | 74 | 88 | 54 |
| 22 | 222 | 388 | 400 | 594 | 584 | 896 | 494 | 159 | 120 | 71 | 78 | 58 |
| 23 | 175 | 605 | 590 | 532 | 552 | 964 | 465 | 159 | 120 | 70 | 73 | 60 |
| 24 | 138 | 552 | 962 | 476 | 650 | 1800 | 582 | 176 | 118 | 66 | 71 | 58 |
| 25 | 261 | 492 | 962 | 433 | 865 | 1710 | 561 | 213 | 114 | 64 | 141 | 56 |
| 26 | 392 | 820 | 1410 | 400 | 1020 | 1190 | 549 | 169 | 106 | 64 | 116 | 54 |
| 27 | 504 | 890 | 1440 | 630 | 1590 | 1110 | 498 | 186 | 100 | 63 | 90 | 53 |
| 28 | 700 | 765 | 1110 | 595 | 1450 | 1130 | 444 | 179 | 97 | 60 | 81 | 52 |
| 29 | 1230 | 570 | 986 | 518 | 1050 | 927 | 398 | 205 | 92 | 60 | 75 | 52 |
| 30 | 1790 | 1440 | 1230 | 460 | --- | 801 | 373 | 284 | 106 | 63 | 70 | 52 |
| 31 | 992 | --- | 1020 | 404 | --- | 792 | --- | 340 | --- | 64 | 67 | --- |
| TOTAL | 8439 | 20512 | 44583 | 35472 | 20131 | 20691 | 15536 | 8524 | 5090 | 3054 | 2854 | 1845 |
| MEAN | 272 | 684 | 1438 | 1144 | 694 | 667 | 518 | 275 | 170 | 98.5 | 92.1 | 61.5 |
| MAX | 1790 | 1440 | 5140 | 3700 | 1640 | 1800 | 700 | 588 | 342 | 267 | 193 | 97 |
| MIN | 36 | 345 | 388 | 400 | 223 | 299 | 373 | 159 | 92 | 60 | 59 | 52 |
| CFSM | 2.29 | 5.75 | 12.1 | 9.61 | 5.83 | 5.61 | 4.35 | 2.31 | 1.43 | .83 | .77 | .52 |
| IN. | 2.64 | 6.41 | 13.94 | 11.09 | 6.29 | 6.47 | 4.86 | 2.66 | 1.59 | .95 | .89 | .58 |
| AC-FT | 16740 | 40690 | 88430 | 70360 | 39930 | 41040 | 30820 | 16910 | 10100 | 6060 | 5660 | 3660 |

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CAL YR 1975  TOTAL  183769   MEAN 503   MAX  5250   MIN 23   CFSM 4.23   IN 57.45   AC-FT  364500
WTR YR 1976  TOTAL  186731   MEAN 510   MAX  5140   MIN 36   CFSM 4.29   IN 58.37   AC-FT  370400
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## 14247400 COLUMBIA RIVER AT BRADWOOD, OR

## WATER-QUALITY RECORDS

LOCATION.--Lat 46°11'45", long 123°25'50", in SW¼NE¼ sec.9, T.8 N., R.6 W., Clatsop County, Hydrologic Unit 17080003, at Bradwood, and at mile 38.9 (62.6 km).

DRAINAGE AREA.--257,100 mi² (665,900 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | DISSOLVED OXYGEN (MG/L) | CHEMICAL OXYGEN DEMAND (LOW LEVEL) (MG/L) | FECAL COLIFORM (COL. PER 100 ML) | STREPTOCOCCI (COLONIES PER 100 ML) | DISSOLVED SILICA (SIO2) (MG/L) | DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 04... | 1130 | 136 | 7.5 | 11.5 | 10.2 | 6 | 80 | B15 | 9.2 | 95 |
| 18... | 1200 | 128 | 7.8 | 8.4 | 11.0 | 9 | 104 | 68 | 11 | 104 |
| DEC | | | | | | | | | | |
| 22... | 1200 | 130 | 7.6 | 5.0 | 12.7 | 38 | 96 | B16 | 13 | 92 |
| JAN | | | | | | | | | | |
| 30... | 1320 | 150 | 7.4 | 5.0 | 12.9 | 2 | B500 | 40 | 13 | 92 |
| MAR | | | | | | | | | | |
| 01... | 1145 | 131 | 7.6 | 4.7 | 13.6 | 5 | 190 | B650 | 11 | 87 |
| APR | | | | | | | | | | |
| 05... | 1200 | 147 | 7.9 | 7.7 | 12.4 | 11 | -- | B19 | 12 | 96 |
| 29... | 1200 | 130 | 8.0 | 10.1 | 12.0 | 17 | B4 | B22 | 11 | 92 |
| JUN | | | | | | | | | | |
| 02... | 1130 | 114 | 7.7 | 12.0 | 11.6 | 14 | B7 | B17 | 9.7 | 89 |
| JUL | | | | | | | | | | |
| 07... | 1200 | 103 | 8.2 | 17.6 | 10.8 | -- | B8 | 35 | 5.9 | 86 |
| 29... | 1130 | 114 | 7.6 | 18.6 | 10.3 | 22 | -- | B13 | 4.7 | 98 |
| AUG | | | | | | | | | | |
| 27... | 1200 | 132 | 7.3 | 19.0 | 9.6 | 6 | 200 | 22 | 5.3 | 97 |

B Results based upon colony counts outside the ideal range.

| DATE | DISSOLVED SOLIDS (TONS PER AC-FT) | TOTAL NONFILTRABLE RESIDUE (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL ORGANIC NITROGEN (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | TOTAL ARSENIC (AS) (UG/L) | TOTAL CADMIUM (CD) (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 04... | .13 | 24 | .13 | .01 | .28 | .29 | .42 | .03 | 1 | 10 |
| 18... | .14 | 1 | .16 | .06 | .36 | .42 | .58 | .04 | 1 | <10 |
| DEC | | | | | | | | | | |
| 22... | .13 | 20 | .37 | .02 | .18 | .20 | .57 | .07 | 1 | <10 |
| JAN | | | | | | | | | | |
| 30... | .13 | 14 | .48 | .02 | .37 | .39 | .87 | .06 | 1 | <10 |
| MAR | | | | | | | | | | |
| 01... | .12 | 32 | .55 | .08 | .23 | .31 | .86 | .08 | 1 | <10 |
| APR | | | | | | | | | | |
| 05... | .13 | 14 | .39 | .03 | .26 | .29 | .68 | 1.6 | 0 | <10 |
| 29... | .13 | 23 | .24 | .00 | .00 | .00 | .24 | .07 | 1 | <10 |
| JUN | | | | | | | | | | |
| 02... | .12 | 54 | .03 | .03 | .35 | .38 | .41 | .08 | 4 | <10 |
| JUL | | | | | | | | | | |
| 07... | .12 | 3 | .00 | .00 | .16 | .16 | .16 | .03 | 4 | <10 |
| 29... | .13 | 18 | .01 | .02 | .23 | .25 | .26 | .05 | 1 | <10 |
| AUG | | | | | | | | | | |
| 27... | .13 | 2 | .02 | .04 | .09 | .13 | .15 | .06 | 1 | <10 |

| DATE | TOTAL CHROMIUM (CR) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MERCURY (HG) (UG/L) | TOTAL SELENIUM (SE) (UG/L) | TOTAL ZINC (ZN) (UG/L) | TOTAL ORGANIC CARBON (C) (MG/L) | CHLOROPHYLL A (UG/L) | CHLOROPHYLL B (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 04... | 4 | 20 | 340 | <100 | .1 | 0 | 30 | 3.8 | 6.60 | .800 |
| 18... | 20 | 30 | 460 | <100 | .0 | 0 | 40 | 1.8 | .000 | .000 |
| DEC | | | | | | | | | | |
| 22... | 10 | 20 | 1200 | <100 | .0 | 0 | 40 | 2.8 | .000 | .000 |
| JAN | | | | | | | | | | |
| 30... | 0 | 10 | 880 | <100 | .0 | 0 | 30 | 3.1 | .000 | .000 |
| MAR | | | | | | | | | | |
| 01... | 0 | 10 | 1900 | <100 | .2 | 0 | 20 | 3.2 | 4.50 | .500 |
| APR | | | | | | | | | | |
| 05... | 10 | 20 | 970 | <100 | .0 | 0 | 160 | 2.9 | 9.00 | .100 |
| 29... | 0 | 10 | 1000 | <100 | .0 | 0 | 160 | 3.6 | 15.9 | .000 |
| JUN | | | | | | | | | | |
| 02... | 10 | 10 | 690 | <100 | <.5 | 0 | 20 | 3.1 | 15.2 | .000 |
| JUL | | | | | | | | | | |
| 07... | 0 | 10 | 370 | <100 | .1 | 0 | 20 | 4.0 | 23.8 | .000 |
| 29... | 10 | 30 | 660 | <100 | .3 | 0 | 160 | 4.1 | -- | -- |
| AUG | | | | | | | | | | |
| 27... | 0 | 10 | 420 | <100 | .1 | 0 | 30 | 2.9 | -- | -- |

## 14247400 COLUMBIA RIVER AT BRADWOOD, OR--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | TOTAL CAL-CIUM (CA) (MG/L) | TOTAL MAG-NE-SIUM (MG) (MG/L) | TOTAL SODIUM (NA) (MG/L) | TOTAL PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | CAR-BONATE (CO3) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | OIL AND GREASE (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV 04... | 1130 | 12 | 8.1 | 6.5 | 1.1 | 56 | 0 | 11 | 4.3 | 0 |
| JAN 30... | 1320 | 14 | 4.6 | 7.6 | 1.4 | 68 | 0 | 14 | 4.4 | 0 |
| APR 29... | 1200 | 14 | 4.8 | 5.5 | 1.5 | 70 | 0 | 11 | 3.3 | 1 |
| JUL 29... | 1130 | 23 | 2.0 | 1.8 | .4 | 61 | 0 | 8.9 | 3.8 | 0 |

## ELOCHOMAN RIVER BASIN

## 14247500 ELOCHOMAN RIVER NEAR CATHLAMET, WA

LOCATION.--Lat 46°13'17", long 123°20'28", in NE¼SE¼ sec.31, T.9 N., R.5 W., Wahkiakum County, Hydrologic Unit 17080003, at former gaging station, 2.4 mi (3.9 km) northeast of Cathlamet, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--65.8 mi² (170.4 km²).

PERIOD OF RECORD.--Water years 1950-71, 1973, November 1975 to September 1976.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: June 1950 to September 1973.

REMARKS.--Prior to 1960 published as "Elokomin River."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTAN-TANEOUS DIS-CHARGE (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | COLOR (PLAT-INUM-COBALT UNITS) | TUR-BID-ITY (JTU) | DIS-SOLVED OXYGEN (MG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| NOV 24... | 1420 | 870 | 55 | 7.3 | 9.0 | 17 | 7 | 12.4 | 8800 |
| MAR 16... | 1400 | 320 | 52 | 7.4 | 8.5 | 13 | 3 | 12.2 | 860 |
| JUN 14... | 1400 | 94 | 61 | 6.8 | 14.2 | 17 | 2 | 10.8 | 8120 |
| AUG 16... | 1345 | 86 | 65 | 7.2 | 14.0 | 42 | 2 | 10.5 | >1600 |

| DATE | FECAL COLI-FORM (COL. PER 100 ML) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV 24... | 880 | 14 | 0 | 4.4 | .8 | 3.7 | 1.7 | 25 |
| MAR 16... | 82 | 19 | 0 | 5.4 | 1.3 | 3.9 | .9 | 24 |
| JUN 14... | 4 | 19 | 0 | 5.1 | 1.4 | 3.9 | .5 | 22 |
| AUG 16... | 68 | 22 | 6 | 6.2 | 1.5 | 4.4 | .9 | 19 |

| DATE | ALKA-LINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV 24... | 21 | 2.0 | 3.0 | 2.8 | .60 | .09 | .03 | .01 |
| MA 16... | 20 | 1.5 | 3.7 | 3.2 | .24 | .07 | .02 | .00 |
| JUN 14... | 18 | 5.6 | 3.3 | 4.8 | .13 | .08 | .02 | .00 |
| AUG 16... | 16 | 1.9 | 5.0 | 6.6 | .27 | .13 | .04 | .01 |

## 14250900 GRAYS RIVER NEAR GRAYS RIVER, WA

LOCATION.--Lat 46°21'34", long 123°33'55", in SE¼SE¼ sec.8, T.10 N., R.7 W., Wahkiakum County, Hydrologic Unit 17080006, at Highway 830 crossing 2.2 mi (3.5 km) east of Grays River.

DRAINAGE AREA.--92.5 mi² (239.6 km²).

PERIOD OF RECORD.--Water years 1973, November 1975 to September 1976.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | TURBIDITY (JTU) | DISSOLVED OXYGEN (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV 24... | 1345 | 2040 | 52 | 7.4 | 9.5 | 21 | 10 | 12.5 |
| MAR 16... | 1330 | 535 | 51 | 7.4 | 8.4 | 8 | 3 | 12.4 |
| JUN 14... | 1330 | 189 | 57 | 6.8 | 14.5 | 13 | 2 | 10.0 |
| AUG 16... | 1315 | 270 | 64 | 6.9 | 13.4 | 33 | 4 | 10.1 |

| DATE | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | HARDNESS (CA,MG) (MG/L) | NONCARBONATE HARDNESS (MG/L) | DISSOLVED CALCIUM (CA) (MG/L) | DISSOLVED MAGNESIUM (MG) (MG/L) | DISSOLVED SODIUM (NA) (MG/L) | DISSOLVED POTASSIUM (K) (MG/L) | BICARBONATE (HCO3) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| NOV 24... | B350 | B40 | 13 | 0 | 4.0 | .8 | 4.0 | 2.3 | 20 |
| MAR 16... | B55 | <2 | 14 | 0 | 4.2 | .9 | 3.8 | .8 | 22 |
| JUN 14... | 44 | <2 | 17 | 0 | 4.9 | 1.2 | 3.9 | .4 | 21 |
| AUG 16... | >1000 | B130 | 20 | 4 | 5.7 | 1.3 | 4.5 | .6 | 19 |

| DATE | ALKALINITY AS CACO3 (MG/L) | CARBON DIOXIDE (CO2) (MG/L) | DISSOLVED SULFATE (SO4) (MG/L) | DISSOLVED CHLORIDE (CL) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV 24... | 16 | 1.3 | 2.8 | 2.8 | .27 | .06 | .03 | .00 |
| MAR 16... | 18 | 1.4 | 3.3 | 2.9 | .12 | .04 | .01 | .00 |
| JUN 14... | 17 | 5.3 | 4.3 | 3.1 | .09 | .05 | .01 | .00 |
| AUG 16... | 16 | 3.8 | 6.1 | 3.9 | .18 | .05 | .06 | .00 |

B Results based upon colony counts outside the ideal range.

## Discharge at ungaged sites

Monthly records for the following four sites have been computed by routing methods described in USGS circular 550. Circular 550 contains monthly records for these sites for water year 1928-65, including monthly flows adjusted for major upstream storage. Figures given herein represent unadjusted flows, and are rated fair. Adjusted records are available from the Northwest Water Resources Data Center.

14144700. COLUMBIA RIVER AT VANCOUVER, WASH.--Lat 45°37'15", long 122°47'00", in NE¼NW¼.sec.34, T.2 N., R.1 E., Clark County, Hydrologic Unit 17080001, 5.0 mi (8.0 km) upstream from Willamette River, and at mile 106.5 (171.4 km). Drainage area, 241,000 mi$^2$ (624,000 km$^2$) approximately. Records available, monthly discharges October 1927 to current year. Daily discharge for October 1963 to September 1969, published in annual data reports for Oregon, 1965-67, 1969.

14222870. COLUMBIA RIVER AT ST. HELENS, OREG.--Lat 45°51'58", long 122°47'00", Columbia County, Hydrologic Unit 17080003, center of channel at intersection of Township (4/5N) line and Oregon-Washington boundary, 0.6 mi (1.0 km) east of St. Helens, and at mile 86.0 (138.4 km). Drainage area, 253,900 mi$^2$ (657,600 km$^2$), approximately. Records available, monthly discharge October 1927 to current year.

14245300. COLUMBIA RIVER AT LONGVIEW, WASH.--Lat 46°06'22", long 122°57'14", Cowlitz County, Hydrologic Unit 17080003, at Longview Bridge, 1.0 mi (1.6 km) south of Longview, 2.0 mi (3.2 km) downstream from Cowlitz River, and at mile 66.0 (106.2 km). Drainage area, 256,700 mi$^2$ (664,853 km$^2$), approximately. Records available, monthly discharge October 1927 to current year.

14280000. COLUMBIA RIVER AT MOUTH, NEAR ASTORIA, OREG.--Lat 46°15', long 124°05', Clatsop County, Hydrologic Unit 17080006, center of channel at river mouth, due north from original end of south jetty, 12.3 mi (19.8 km) northwest of Astoria, and at mile 0 (0 km). Drainage area, 258,000 mi$^2$ (668,000 km$^2$), approximately. Records available, monthly discharge October 1927 to current year.

MONTHLY AND ANNUAL MEAN DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR 1976

| OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | ANUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14144700 COLUMBIA RIVER AT VANCOUVER, WA | | | | | | | | | | | | |
| 124,400 | 163,600 | 234,300 | 230,800 | 231,900 | 237,700 | 280,900 | 369,900 | 303,500 | 243,800 | 226,300 | 168,400 | 234,600 |
| 14222870 COLUMBIA RIVER AT SAINT HELENS, OREG | | | | | | | | | | | | |
| 151,500 | 220,800 | 344,200 | 342,600 | 286,700 | 291,000 | 329,200 | 401,600 | 323,300 | 255,600 | 237,500 | 183,000 | 280,600 |
| 14245300 COLUMBIA RIVER AT LONGVIEW, WA | | | | | | | | | | | | |
| 161,800 | 239,900 | 387,000 | 370,400 | 303,900 | 307,900 | 340,300 | 409,800 | 330,700 | 263,000 | 242,000 | 187,000 | 295,300 |
| 14280000 COLUMBIA RIVER AT MOUTH, NEAR ASTORIA, OREG | | | | | | | | | | | | |
| 168,200 | 251,800 | 409,700 | 389,600 | 313,900 | 318,400 | 346,300 | 411,300 | 337,100 | 267,600 | 241,200 | 192,100 | 303,800 |

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited stream-flow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are useable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

### Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain, but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1976

| Station No. | Station name | Location | Drainage area mi$^2$ (km$^2$) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| | | Bear River basin | | | | | |
| 12009500 | Bear Branch near Naselle, Wash. | Lat 46°19'48", long 123°54'36", on line between secs.21 and 22, T.10 N., R.10 W., Pacific County, on right bank 3.4 mi (5.5 km) upstream from bridge on U.S. Highway 101 and 5.3 mi (8.5 km) southwest of Naselle. | 11.7 (30.3) | 1963-75‡, 1976- | 12- 1-75 | 6.87 | 2,030 |
| | | Naselle River basin | | | | | |
| 12010700 | South Fork Naselle River near Naselle, Wash. (discontinued) | Lat 46°20'39", long 123°48'23", in SW¼SW¼ sec.16, T.10 N., R.9 W., Pacific County, on left bank 25 ft (8 m) downstream from private road bridge, 1,800 ft (550 m) downstream from Davis Creek, 1.4 mi (2.3 km) south of Naselle. | 17.9 (46.4) | 1964-75‡, 1976 | 12- 1-75 | 10.09 | 3,890 |
| | | South Nemah River basin | | | | | |
| 12010800 | South Nemah River near Naselle, Wash. | Lat 46°26'27", long 123°51'38", in NE¼NW¼ sec.13, T.11 N., R.10 W., Pacific County, at U.S. Highway 101, 6 mi (9.7 km) northwest of Naselle. | 1.99 (5.15) | 1962- | 12- 1-75 | 8.76 | 344 |
| | | North Nemah River basin | | | | | |
| 12011200 | Williams Creek near South Bend, Wash. (discontinued) | Lat 46°31'49", long 123°51'39", in NW¼NW¼ sec.13, T.12 N., R.10 W., Pacific County, on left bank 0.1 mi (0.2 km) upstream from unnamed tributary, 1.5 mi (2.4 km) upstream from mouth, and 10 mi (16 km) southwest of South Bend. | 9.43 (24.42) | 1964-74‡, 1975-76 | 12- 1-75 | 6.34 | 1,660 |
| | | Willapa River basin | | | | | |
| 12012000 | Fork Creek near Lebam, Wash. | Lat 46°33'19", long 123°35'00", in SW¼NW¼ sec.5, T.12 N., R.7 N., Pacific County, on right bank 0.8 mi (1.3 km) upstream from mouth and 1.6 mi (2.6 km) southwest of Lebam. | 20.4 (52.8) | 1953-70‡, 1971- | 12- 1-75 | 7.10 | 2,850 |
| 12014500 | South Fork Willapa River near Raymond, Wash. | Lat 46°37'47", long 123°42'07", in SW¼NE¼ sec.8, T.13 N., R.8 W., Pacific County, on left bank 200 ft (61 m) upstream from logging bridge, 0.4 mi (0.6 km) downstream from Rue Creek, 4.0 mi (6.4 km) southeast of junction of U.S. Highway 101 and State Highway 6 at Raymond, and at mile 9.0 (14.5 km). | 27.8 (72.0) | 1953-71‡, 1972- | 12- 1-75 | 8.87 | 3,290 |
| | | Smith Creek basin | | | | | |
| 12015100 | Clearwater Creek near Raymond, Wash. | Lat 46°44'59", long 123°45'59", on line between secs.26 and 35, T.15 N., R.9 W., Pacific County, on right bank 40 ft (12 m) downstream from road crossing, 0.7 mi (1.1 km) upstream from mouth, and 4.5 mi (7.2 km) northwest of Raymond. | 3.98 (10.31) | 1964-75‡, 1976- | 12- 1-75 | 3.75 | 511 |
| | | Chehalis River basin | | | | | |
| 12020500 | Elk Creek near Doty, Wash. | Lat 46°37'42", long 123°19'50", in SE¼NE¼ sec.8, T.13 N., R.5 W., Lewis County, on right bank 0.5 mi (0.8 km) upstream from Nine Creek, 1.0 mi (1.6 km) upstream from Deer Creek, 2.6 mi 4.2 km) west of Doty and at mile 2.5 (4.0 km). | 46.6 (121) | 1944-50‡,<br>1952-67,<br>1968-70‡,<br>1971-72<br>1974- | 12- 4-75 | 10.59 | 3,080 |
| 12024000 | South Fork Newaukum River near Onalaska, Wash. | Lat 46°34'34", long 122°40'58", on south line of SE¼ sec.28, T.13 N., R.1 E., Lewis County, on right bank on upstream side of county road bridge, 1.0 mi (1.6 km) upstream from Lost Creek, 1.7 mi (2.7 km) east of Onalaska, and at mile 22.8 (36.7 km). | 42.4 (110) | 1945-48‡,<br>1958-71‡,<br>1972- | 12- 4-75 | 8.02 | 3,160 |
| 12025300 | Salzer Creek near Centralia, Wash. | Lat 46°41'31", long 122°54'26", in NE¼NE¼ sec.22, T.14 N., R.2 W., Lewis County, on right bank at downstream side of highway bridge, 500 ft (152 m) downstream from unnamed tributary, 2.4 mi (3.9 km) east of KELA Radio Tower in Centralia, and at mile 3.9 (6.3 km). | 12.6 (32.6) | 1969-71‡, 1972- | 12- 4-75 | 7.88 | 318 |

‡ Operated as continuous-record station.

Annual maximum discharge at crest-stage partial-record stations during water year 1976

| Station No. | Station name | Location | Drainage area mi² (km²) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| | | **Chehalis River basin--Continued** | | | | | |
| 12032500 | Cloquallum Creek at Elma, Wash. | Lat 47°00'17", long 123°23'11", in SW¼NW¼ sec.36, T.18 N., R.6 W., Grays Harbor County, on right bank 10 ft (3 m) downstream from State Highway 12 bridge, 1.7 mi (2.7 km) east of Elma, 1.9 mi (3.1 km) downstream from Wildcat Creek, and at mile 1.9 (3.1 km). | 66.9 (168) | 1962-63‡, 1966-72‡, 1973- | 2-12-75<br>12- 6-75f | 8.23<br>10.32 | c2,250<br>16,000 |
| 12034700 | West Fork Satsop River tributary near Matlock, Wash. | Lat 47°18'50", long 123°35'25", in NE¼ sec.17, T.21 N., R.7 W., Grays Harbor County, at Simpson logging road, 3 mi (4.8 km) south of Camp Grisdale, 10.5 mi (16.9 km) northwest of Matlock, and 24 mi (38.6 km) north of Montesano. | .33 (.85) | 1950- | 12-26-75 | 6.00 | 60 |
| | | **Quillayute River basin** | | | | | |
| 12041500 | Soleduck River near Fairholm, Wash. | Lat 48°02'40", long 123°57'28", in lot 4, SE¼SW¼ sec.35, T.30 N., R.10 W., Clallam County, Olympic National Park, on right bank 0.1 mi (0.2 km) downstream from South Fork, 2.6 mi (4.2 km) southwest of Fairholm, and at mile 54.9 (88.3 km). | 83.8 (217) | 1918-21‡, 1934-71‡, 1972- | 12- 3-75 | 12.70 | 15,000 |
| 12042900 | Grader Creek near Forks, Wash. | Lat 47°55'40", long 124°24'25", in SW¼ sec.17, T.28 N., R.13 W., Clallam County, at U.S. Highway 101, 2 mi (3.2 km) southwest of Forks. | 1.67 (4.33) | 1950- | 12-20-75 | 22.40 | [illegible] |
| 12043100 | Dickey River near La Push, Wash. (discontinued) | Lat 47°57'53", long 124°32'53", in NE¼NE¼ sec.6, T.28 N., R.14 W., Clallam County, on left bank 1.0 mi (1.6 km) upstream from Colby Creek, 5.5 mi (8.8 km) northeast of La Push and at mile 6.0 (9.7 km). | 86.3 (223.5) | 1962-73‡, 1974-76 | 12- 2-75 | 13.90 | 8,600 |
| | | **Hoko River basin** | | | | | |
| 12043300 | Hoko River near Sekiu, Wash. | Lat 48°14'30", long 124°22'57", in NE¼SW¼ sec.20, T.32 N., R.13 W., Clallam County, on right bank 2.2 mi (3.5 km) upstream from Little Hoko River and 4.0 mi (6.4 km) southwest of Sekiu. | 51.2 (132.6) | 1962-74‡, 1975- | 12- 1-75 | 11.62 | 9,030 |
| | | **East Twin River basin** | | | | | |
| 12043430 | East Twin River near Pysht, Wash. | Lat 48°09'49", long 123°56'33", in NW¼SW¼ sec.24, T.31 N., R.10 W., Clallam County, on right bank on downstream side of bridge on State Highway 112, 1,300 ft (396 m) upstream from mouth, and 8.4 mi (13.5 m) southeast of Pysht. | 14.0 (36.3) | 1962-72‡, 1973- | 12- 2-75 | 5.40 | 1,170 |
| | | **Snow Creek basin** | | | | | |
| 12050500 | Snow Creek near Maynard, Wash. | Lat 47°56'25", long 122°53'12", in NE¼NE¼ sec.11, T.28 N., R.2 W., Jefferson County, on right bank 1,800 ft (549 m) upstream from Andrews Creek, 3.2 mi (5.1 km) south of Uncas, and 4.0 mi (6.4 km) south of Maynard. | 11.2 (29.0) | 1952-72‡, 1973- | 12- 3-75 | 2.90 | [illegible] |
| | | **Hamma Hamma River basin** | | | | | |
| 12054500 | Hamma Hamma River near Eldon, Wash. | Lat 47°35'18", long 123°06'57", in SE¼NW¼ sec.7, T.24 N., R.3 W., Mason County, Olympic National Forest, on left bank 0.3 mi (0.5 km) downstream from Watson Creek, 4.6 mi (7.4 km) northwest of Eldon, and at mile 6.2 (10.0 km). | 51.3 (133) | 1952-71‡, 1972- | 12- 3-75 | 6.00 | 5,130 |
| 12054600 | Jefferson Creek near Eldon, Wash. | Lat 47°35'00", long 123°06'18", in SE¼SE¼ sec.7, T.24 N., R.3 W., Mason County, Olympic National Forest, on right bank 0.2 mi (0.3 km) upstream from mouth and 4.0 mi (6.4 km) northwest of Eldon. | 21.6 (55.9) | 1950-71‡, 1972- | 12- 3-75 | 7.60 | 2,070 |
| | | **Skokomish River basin** | | | | | |
| 12058000 | Deer Meadow Creek near Hoodsport, Wash. | Lat 47°24'16", long 123°13'16", in NW¼NW¼ sec.8, T.22 N., R.4 W., Mason County, on left bank 0.5 (0.8 km) west of Hoodsport. | 1.83 (4.74) | 1950-73‡, 1974- | 12-20-75 | 2.30 | 270 |
| 12059800 | South Fork Skokomish River near Hoodsport, Wash. | Lat 47°26'45", long 123°24'54", in NW¼ sec.35, T.23 N., R.6 W., Mason County, Olympic National Forest, on left bank 100 ft (30 m) downstream from Pine Creek and 13.1 mi (21.1 km) west of Hoodsport. | 26.0 (67.3) | 1964-70‡, 1972- | 12- 3-75 | 7.62 | 5,360 |
| | | **Tahuya River basin** | | | | | |
| 12065500 | Gold Creek near Bremerton, Wash. | Lat 47°33'20", long 122°48'35", in NE¼SW¼ sec.21, T.24 N., R.1 W., Kitsap County, on right bank 1.2 mi (1.9 km) upstream from mouth and 8.4 mi (13.5 km) west of Olympic College in Bremerton. | 1.51 (3.91) | 1946-70‡, 1972- | 12- 3-75 | 6.03 | 260 |
| | | **Dewatto River basin** | | | | | |
| 12068500 | Dewatto River near Dewatto, Wash. | Lat 47°28'10", long 123°01'33", in NE¼SW¼ sec.23, T.23 N., R.3 W., Mason County, on right bank 400 ft (122 m) downstream from highway bridge, 2.0 mi (3.2 km) upstream from mouth, and 2.2 mi (3.5 km) northeast of Dewatto. | 18.4 (47.7) | 1947-54‡, 1955-57, 1958-74‡, 1975- | 12- 3-75 | 3.00 | 1,480 |

‡ Operated as continuous-record station.

c Not previously published.

f Published in error in 1975 publication.

Annual maximum discharge at crest-stage partial-record stations during water year 1976

| Station No. | Station name | Location | Drainage area mi$^2$ (km$^2$) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| | | Chico Creek basin | | | | | |
| 12072000 | Chico Creek near Bremerton, Wash. | Lat 47°35'28", long 122°42'29", in NE¼NW¼ sec.8, T.24 N., R.1 E., Kitsap County, on left bank at highway crossing, 0.5 mi (0.8 km) downstream from Dickerson Creek, and 3.7 mi (6.0 km) northwest of Olympic College in Bremerton. | 15.3 (39.6) | 1947-50‡,<br>1961-74‡,<br>1975- | 12- 3-75 | 4.43 | 589 |
| | | Beaver Creek basin | | | | | |
| 12072600 | Beaver Creek near Manchester, Wash. (discontinued) | Lat 47°34'15", long 122°33'30", in SE¼NW¼ sec.16, T.24 N., R.2 E., Kitsap County, at Beach Drive 0.4 mi (0.6 km) above mouth and 1.2 mi (1.9 km) northwest of Manchester. | 1.61 (4.17) | 1967- | 12- 4-75 | 4.18 | 73 |
| | | Goldsborough Creek basin | | | | | |
| 12076500 | Goldsborough Creek near Shelton, Wash. | Lat 47°12'56", long 123°10'52", in NW¼NW¼ sec.22, T.20 N., R.4 W., Mason County, on right bank 100 ft (30 m) upstream from road bridge, 3.8 mi (6.1 km) west of Shelton, and 5.5 mi (8.8 km) upstream from mouth. | 39.3 (102) | 1952-71‡,<br>1972- | 12- 3-75 | 6.51 | 1,070 |
| | | Kennedy Creek basin | | | | | |
| 12078400 | Kennedy Creek near Kamilche, Wash. | Lat 47°04'37", long 123°07'33", in SW¼NE¼ sec.1, T.18 N., R.4 W., Mason County, on left bank 100 ft (30 m) upstream from Kennedy Falls, 2.2 mi (3.5 km) upstream from mouth at Oyster Bay, and 3.9 mi (6.3 km) south of Kamilche. | 17.4 (45.1) | 1961-71‡,<br>1972-74,<br>1976 | 12- 3-75 | 4.28 | 1,180 |
| | | Deschutes River basin | | | | | |
| 12079000 | Deschutes River near Rainier, Wash. | Lat 46°51'08", long 122°40'03", in SE¼SW¼ sec.22, T.16 N., R.1 E., Thurston County, on right bank 75 ft (23 m) upstream from county road crossing, 0.4 mi (0.6 km) downstream from outlet of Reichel Lake, 2.7 mi (4.3 km) southeast of Rainier, and at mile 25.9 (41.7 km). | 89.8 (232.6) | 1949-75‡,<br>1976- | 12- 4-75 | 13.22 | 5,650 |
| | | McAllister Creek basin | | | | | |
| 12081300 | Eaton Creek near Yelm, Wash. | Lat 46°58'05", long 122°43'30", in S½ sec.7, T.17 N., R.1 E., Thurston County, at county road, 6 mi (9.6 km) northwest of Yelm. | 2.28 (5.91) | 1960- | 12- 3-75 | 5.79 | 56 |
| | | Nisqually River basin | | | | | |
| 12089700 | Yelm Creek near Yelm, Wash. (discontinued) | Lat 46°53'18", long 122°36'14", in SE¼NW¼ sec.7, T.16 N., R.2 E., Thurston County, at Morris Road, 3.7 mi (6.0 km) south of Yelm. | 1.72 (4.45) | 1968-76 | 1-15-76 | 3.86 | 37 |
| 12090200 | Muck Creek at Roy, Wash. | Lat 47°00'20", long 122°32'32", in SW¼NW¼ sec.34, T.18 N., R.2 E., Pierce County, on right bank 0.3 mi (0.5 km) downstream from Muck Lake at north edge of Roy. | 86.8 (225) | 1956-72‡,<br>1973- | 12- 5-75 | 4.36 | 502 |
| | | Judd Creek basin | | | | | |
| 12091700 | Judd Creek near Burton, Wash. | Lat 47°24'40", long 122°28'18", in NE¼SW¼ sec.7, T.22 N., R.3 E., King County, on right bank at upstream side of culvert at 216th Street S.W., 1.0 mi (1.6 km) upstream from mouth, and 1.5 mi (2.4 km) north of Burton. | 4.41 (11.42) | 1968-75‡,<br>1976- | 12- 4-75 | 4.78 | [g]112 |
| | | Puyallup River basin | | | | | |
| 12095000 | South Prairie Creek at South Prairie, Wash. | Lat 47°08'23", long 122°05'28", in NE¼NW¼ sec.18, T.19 N., R.6 E., Pierce County, on left bank 30 ft (9 m) downstream from railroad bridge, 200 ft (61 m) upstream from bridge on State Highway 162, 0.3 mi (0.5 km) east of South Prairie and at mile 5.9 (9.5 km). | 79.5 (206) | 1950-71‡,<br>1972- | 12- 2-75 | 7.82 | 4,380 |
| | | Lake Washington basin | | | | | |
| 12115300 | Green Point Creek near Cedar Falls, Wash. | Lat 47°23'20", long 121°40'30", in SE¼ sec.17 T.22 N., R.9 E., King County, at road crossing, near mouth, 5 mi (8.0 km) southeast of Cedar Falls. | 0.89 (2.31) | 1957- | 12- 2-75 | 14.54 | 104 |
| 12118500 | Rock Creek near Maple Valley, Wash. | Lat 47°22'48", long 122°00'58", in SE¼NE¼ sec.22, T.22 N., R.6 E., King County, on left bank 50 ft (15 m) upstream from culvert crossing, 650 ft (198 m) upstream from mouth, and 2.2 mi (3.5 km) southeast of Maple Valley. | 12.6 (32.6) | 1945-73‡,<br>1974- | 12- 3-75 | 2.84 | 135 |
| 12119600 | May Creek at mouth, near Renton, Wash. | Lat 47°31'48", long 122°12'00", in NE¼NW¼ sec.32, T.24 N., R.5 E., King County, on left bank at highway crossing, 0.21 mi (0.3 km) upstream from mouth, and 2 mi (3.2 km) north of Renton. | 12.7 (32.9) | 1964-71‡,<br>1973- | 12- 3-75 | 4.20 | 510 |
| 12119700 | Coal Creek near Bellevue, Wash. | Lat 47°34'00", long 122°10'45", in NW¼SW¼ sec.16, T.24 N., R.5 E., King County, 0.8 mi (1.3 km) upstream from mouth and 3 mi (4.8 km) south of Bellevue. | 6.80 (17.6) | 1964-68‡,<br>1969- | 12- 3-75 | 3.28 | 244 |

‡ Operated as continuous-record station.

[g] The annual minimum discharge was determined to be 1.3 ft$^3$/s on Oct. 1, 1975 from recorded gage-height and stage-discharge relation rating.

Annual maximum discharge at crest-stage partial-record stations during water year 1976

| Station No. | Station name | Location | Drainage area mi² (km²) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| Lake Washington basin--Continued | | | | | | | |
| 12119800 | North Branch Mercer Creek near Bellevue, Wash. | Lat 47°37'42", long 122°09'06", in NW¼NE¼ sec.27, T.25 N., R.5 E., King County, at Northrup Way and 140th Avenue N.E., 2.5 mi (4.0 km) northeast of Bellevue. | 3.05 (7.90) | 1949-67,<br>1970- | 12- 4-75 | 12.66 | 85 |
| Snohomish River basin | | | | | | | |
| 12141000 | Woods Creek near Monroe, Wash. | Lat 47°52'08", long 121°55'31", in NW¼SW¼ sec.33, T.28 N., R.7 E., Snohomish County, on right bank 0.4 mi (0.6 km) downstream from West Fork, 2.4 mi (3.9 km) northeast of Monroe, and at mile 3.1 (5.0 km). | 56.4 (146) | 1947-71‡,<br>1972- | 12- 3-75 | 5.71 | 1,920 |
| 12142300 | Hancock Creek near Snoqualmie, Wash. | Lat 47°34'21", long 121°41'12", in SE¼SE¼ sec.8, T.24 N., R.9 E., King County, on left bank 300 ft (91 m) downstream from Lake Hancock outlet, 1.5 mi (2.4 km) upstream from mouth, and 7.2 mi (11.6 km) northeast of Snoqualmie. | 7.67 (19.9) | 1965-71‡,<br>1972- | 12- 3-75 | 3.02 | 586 |
| 12143000 | North Fork Snoqualmie River near North Bend, Wash. | Lat 47°32'15", long 121°44'26", in SW¼NE¼ sec.26, T.24 N., R.8 E., King County, on right bank 3.4 mi (5.5 km) northeast of North Bend and at mile 2.2 (3.5 km). | 95.7 (248) | 1908-26‡,<br>1930-38‡,<br>1961-71‡,<br>1972- | 12- 3-75 | 11.00 | 15,500 |
| 1214400 | South Fork Snoqualmie River at North Bend, Wash. | Lat 47°29'18", long 121°47'03", in SW¼SE¼ sec.9 T.23 N., R.8 E., King County, on left bank 0.5 (0.8 km) south of North Bend and 2.8 mi (4.5 km) upstream from mouth. | 81.7 (211.6) | 1907-26‡,<br>1929-38‡,<br>1945-50‡,<br>1961-74‡,<br>1975- | 12- 3-75 | 12.15 | 11,600 |
| 12146000 | Patterson Creek near Fall City, Wash. | Lat 47°34'52", long 121°56'23", in SW¼NE¼ sec.8, T.24 N., R.7 E., King County, on left bank 150 ft (46 m) upstream from private road bridge, 2.6 mi (4.2 km) northwest of Fall City, and at mile 1.9 (3.1 km). | 15.5 (40.1) | 1948-50‡,<br>1956-71‡,<br>1972- | 12- 3-75 | 5.35 | 250 |
| 12147000 | Griffin Creek near Carnation, Wash. | Lat 47°36'58", long 121°54'15", in SW¼SW¼ sec.27, T.25 N., R.7 E., King County, on left bank 0.2 mi (0.3 km) upstream from bridge on State Highway 203, 2.3 mi (3.7 km) south of Carnation, and at mile 0.9 (1.4 km). | 17.1 (44.3) | 1946-70‡,<br>1972- | 12- 3-75 | 3.96 | 428 |
| 12152500 | Pilchuck River near Granite Falls, Wash. | Lat 48°03'15", long 121°57'25", in SE¼ sec.30, T.30 N., R.7 E., Snohomish County, on right bank 200 ft above county road bridge and 2 mi (3.2 km) southeast of Granite Falls. | 54.4 (141) | 1944-57‡,<br>1958- | 1-18-75<br>1-15-76 | [f]8.63<br>9.59 | 6,410<br>8,510 |
| Stillaguamish River basin | | | | | | | |
| 12168500 | Pilchuck Creek near Bryant, Wash. | Lat 48°15'58", long 122°09'46", in NE¼NE¼ sec.16, T.32 N., R.5 E., Snohomish County, on right bank 500 ft (152 m) upstream from bridge on State Highway 9, 1.8 mi (2.9 km) north of Bryant, and at mile 6.4 (10.3 km). | 52.0 (134.7) | 1929-31‡,<br>1950-75‡,<br>1976- | 12- 2-75 | 7.68 | 5,860 |
| Skagit River basin | | | | | | | |
| 12191800 | Sulphur Creek near Concrete, Wash. | Lat 48°40'04", long 121°45'00", in SE¼ sec.22, T.37 N., R.8 E., Whatcom County, Mount Baker National Forest, on left bank 9.5 mi (15.3 km) north of Concrete and at mile 3.5 (5.6 km). | 8.36 (21.65) | 1963-73‡,<br>1974- | 12- 4-75 | 3.20 | 860 |
| 12196000 | Alder Creek near Hamilton, Wash. | Lat 48°31'42", long 121°56'58", in NW¼NE¼ sec.18, T.35 N., R.7 E., Skagit County, on left bank 3 ft (1 m) downstream from logging road culvert, 0.3 mi (0.5 km) upstream from bridge on State Highway 20, 2.0 mi (3.2 km) east of Hamilton and at mile 0.8 (1.3 km). | 10.7 (27.7) | 1944-71‡,<br>1972- | 12- 3-75 | 11.47 | 482 |
| 12196200 | Day Creek below Day Lake, near Lyman, Wash. | Lat 48°24'32", long 121°58'47", in SE¼NW¼ sec.25, T.34 N., R.6 E., Skagit County, on right bank 1,000 ft (305 m) downstream from outlet of Day Lake, 8.9 mi (14.3 km) southeast of Lyman, and at mile 10.4 (16.7 km). | 6.56 (16.99) | 1963-71‡,<br>1973- | 12- 3-75 | 6.06 | 977 |
| 12199800 | East Fork Nookachamps Creek near Big Lake, Wash. | Lat 48°24'50", long 122°09'25", in SW¼SW¼ sec.22, T.34 N., R.5 E., Skagit County, on right bank 3.0 mi (4.8 km) upstream from Walker Creek, 3.8 mi (6.1 km) northeast of town of Big Lake, and at mile 8.5 (13.7 km). | 3.56 (9.22) | 1961-71‡,<br>1972,<br>1974- | 12- 2-75 | 5.18 | 636 |
| Samish River basin | | | | | | | |
| 12201500 | Samish River near Burlington, Wash. | Lat 48°32'44", long 122°20'19", in SE¼SE¼ sec.6, T.35 N., R.4 E., Skagit County, on left bank 500 ft (152 m) downstream from bridge on U.S. Highway 99, 0.5 mi (0.8 km) downstream from Friday Creek, 5.0 mi (8.0 km) north of Burlington, and at mile 10.3 (16.6 km). | 87.8 (227) | 1944-71‡,<br>1972- | 12- 2-75 | 11.95 | 6,090 |

‡ Operated as continuous-record station.

[f] Published in error in 1975 publication.

Annual maximum discharge at crest-stage partial-record stations during water year 1976

| Station No. | Station name | Location | Drainage area $mi^2$ ($km^2$) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Dis-charge (cfs) |
| | | Whatcom Creek basin | | | | | |
| 12201950 | Anderson Creek near Bellingham, Wash. | Lat 48°20'26", long 122°15'58", in NW¼NW¼ sec.26, T.37 N., R.4 E., Whatcom County, on right bank at upstream side of county bridge, 500 ft (152 m) upstream from mouth and Lake Whatcom, and 11.0 mi (17.7 km) southeast of Western Washington College in Bellingham. | 4.13<br>(10.7) | 1968-70‡,<br>1971- | 12- 2-75 | 5.36 | 303 |
| 12202000 | Austin Creek near Bellingham, Wash. | Lat 48°42'47", long 122°19'48", in SW¼NW¼ sec.8, T.37 N., R.4 E., Whatcom County, on left bank 240 ft (73 m) upstream from bridge on Lake Whatcom Boulevard, 1.0 mi (1.6 km) upstream from mouth and Lake Whatcom, and 7.3 mi (11.7 km) southeast of Western Washington State College in Bellingham. | 7.73<br>(20.0) | 1948‡,<br>1954-55‡,<br>1968-70‡,<br>1971‡,<br>1973- | 12- 2-75 | 4.79 | 446 |
| | | Nooksack River basin | | | | | |
| 12204400 | Nooksack River tributary near Glacier, Wash. | Lat 48°54'30", long 121°48'20", in SW¼ sec.32, (unsurveyed), T.40 N., R.8 E., Whatcom County, at State Highway 542, 6.5 mi (10.5 km) east of Glacier. | 1.15<br>(2.98) | 1956-60,<br>1962- | 12- 3-75 | 16.44 | 68 |
| 12208000 | Middle Fork Nooksack River near Deming, Wash. | Lat 48°46'43", long 122°06'20", in lot 7 or 8, in SW¼ sec.13, T.38 N., R.5 E., Whatcom County, on left bank 0.5 mi (0.8 km) upstream from Heislers Creek, 6.0 mi (9.7 km) southeast of Deming, and at mile 5.6 (9.0 m). | 73.3<br>(190) | 1921‡,<br>1934-35‡,<br>1965-68‡,<br>1970‡,<br>1971- | 12- 3-75 | 10.80 | 13,100 |
| 12212800 | Tenmile Creek tributary No. 2 near Bellingham, Wash. | Lat 48°50'35", long 122°24'30", 0.2 mi (0.3 km) north from center of sec.27, T.39 N., R.3 E., Whatcom County, at Starry Road, 2.8 mi (4.5 km) northwest of Noon, and 7 mi (11.3 km) northeast of Bellingham. | .24<br>(.62) | 1956- | 12- 2-75 | 7.48 | 33 |
| | | White Salmon River basin | | | | | |
| 14122800 | Phelps Creek near B-Z Corner, Wash. | Lat 46°53'01", long 121°31'13", in NE¼NW¼ sec.35, T.5 N., R.10 E., Klickitat County, at State Highway 141, 2.5 mi (4.0 km) north of B-Z corner. | 1.88<br>(4.87) | 1970- | 12- 4-75 | 13.03 | 74 |
| | | Groeneveld Creek basin | | | | | |
| 14144600 | Groeneveld Creek near Camas, Wash. | Lat 45°35'10", long 122°27'28", sec.41, T.1 N., R.3 E., Clark County, at private road 15 ft (5 m) east of county road, 0.4 mi (0.6 km) above mouth, and 2.5 mi (4.0 km) west of Camas city center. | 0.51<br>(1.32) | 1958- | 2-16-76 | 12.02 | 32 |
| | | Lake River basin | | | | | |
| 14212000 | Salmon Creek near Battle Ground, Wash. | Lat 45°46'26", long 122°26'40", in NE¼SW¼ sec.4, T.3 N., R.3 E., Clark County, on left bank 100 ft (30 m) upstream from highway bridge, 150 ft (46 m) downstream from Rock Creek, 4.3 mi (6.9 m) east of Battle Ground, and at mile 22.1 (35.6 km). | 18.3<br>(47.4) | 1944-75‡,<br>1976- | 12- 4-75 | 3.40 | 712 |
| | | Lewis River basin | | | | | |
| 14213500 | Big Creek below Skookum Meadow near Trout Lake, Wash. | Lat 46°05'36", long 121°51'50", Skamania County, Gifford Pinchot National Forest 40 ft (12 m) upstream from forest service road, just down stream from Skookum Meadow, 3 mi (4.8 km) upstream from mouth and 17 mi (27.4 km) northwest of Trout Lake. | 13.2<br>(34.2) | 1928-31‡,<br>1956-70‡,<br>1971- | 12- 1-75 | 6.44 | 343 |
| 14216000 | Lewis River above Muddy River, near Cougar, Wash. | Lat 46°03'38", long 121°59'00", in SE¼ sec.30, T.7 N., R.7 E., Skamania County, Gifford Pinchot Forest, on right bank 1.0 mi (1.6 km) upstream from Pepper Creek, 1.9 mi (3.1 km) upstream from Muddy River, 15.4 mi (24.8 km) east of Cougar, and at mile 62.0 (99.8 km). | 227<br>(588) | 1928-34‡,<br>1955-70‡,<br>1972- | 1-14-75<br>12- 4-75 | 8.56<br>— | *10,300<br>d |
| | | Kalama River basin | | | | | |
| 14222970 | Spring Creek near Cougar, Wash. | Lat 46°06'37", long 122°21'23", in NW¼NE¼ sec.7, T.7 N., R.4 E., Cowlitz County, on right bank 100 ft (30 m) upstream from mouth, 400 ft (122 m) southeast of Kalama Falls, and 4.7 mi (7.6 km) northwest of Cougar. | - | 1970-71‡,<br>1972- | 12- 1-75 | 3.68 | 288 |
| 14222980 | Kalama River below falls, near Cougar, Wash. | Lat 46°06'25", long 122°21'33", in SE¼NW¼ sec.7, T.7 N., R.4 E., Cowlitz County, on left bank 50 ft (15 m) downstream from bridge, 0.4 mi (0.6 km) downstream from falls, and 4.7 mi (7.6 km) northwest of Cougar. | 37.4<br>(96.9) | 1970-71‡,<br>1972- | 12- 4-75 | 6.64 | 2,390 |
| 14223500 | Kalama River below Italian Creek, near Kalama, Wash. | Lat 46°02'42", long 122°48'51", in NE¼SW¼ sec.33, T.7 N., R.1 W., Cowlitz County, on right bank 2.8 mi (4.5 km) northeast of Kalama, 5.7 mi (9.2 km) downstream from Italian Creek, and at mile 4.2 (6.8 km). | 198<br>(513) | 1946-75‡,<br>1976- | 12- 4-75 | 14.59 | 15,800 |

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‡ Operated as continuous-record gaging station.
* Revised.
d Unknown.

Annual maximum discharge at crest-stage partial-record stations during water year 1976

| Station No. | Station name | Location | Drainage area mi² (km²) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| | | Cowlitz River basin | | | | | |
| 14226800 | Skate Creek tributary near Packwood, Wash. | Lat 46°42'10", long 121°48'30", in NW¼ sec.16, T.14 N., R.8 E., Lewis County, at Skate Creek road 9.5 mi (15.3 km) northwest of Packwood. | 1.22<br>(3.16) | 1959- | 12- 3-75 | 17.03 | 147 |
| 14235500 | West Fork Tilton River near Morton, Wash. | Lat 46°36'40", long 122°14'36", in NE¼SE¼ sec.13, T.13 N., R.4 E., Lewis County, on left bank 0.9 mi (1.4 km) upstream from mouth and 3.8 mi (6.1 km) northeast of Morton. | 16.4<br>(42.5) | 1951-71‡,<br>1972- | 12- 1-75 | 5.82 | 2,400 |
| 14237500 | Winston Creek near Silver creek, Wash. | Lat 46°28'57", long 122°31'13", about center of sec.35, T.12 N., R.2 E., Lewis County, 100 ft (30 m) downstream from bridge, 3.2 mi (5.1 km) upstream from mouth, and 4.4 mi (7.1 km) southeast of town of Silver Creek. | 37.8<br>(97.9) | 1950-70‡,<br>1971- | 12- 4-75 | 7.61 | 1,700 |
| 14239000 | Salmon Creek near Toledo, Wash. | Lat 46°24'50", long 122°49'15", in NW¼NW¼ sec.28, T.11 N., R.1 W., Lewis County, on right bank 0.2 mi (0.3 km) downstream from Little Salmon Creek, 2.2 mi (3.5 km) southeast of Toledo, and at mile 3.3 (5.3 km). | 77.6<br>(201) | 1962-71‡,<br>1972- | 12- 4-75 | 10.05 | 4,170 |
| | | Elochoman River basin | | | | | |
| 14247500 | Elochoman River near Cathlamet, Wash. | Lat 46°13'17", long 123°20'28", in NE¼SE¼ sec.31, T.9 N., R.5 W., Wahkiakum County, on right bank 125 ft (38 m) upstream from railroad bridge, 2.4 mi (3.9 km) northeast of Cathlamet, and at mile 5.0 (8.0 km). | 65.8<br>(170) | 1941-71‡,<br>1972- | 12- 2-75 | 11.74 | 7,100 |
| | | Jim Crow Creek basin | | | | | |
| 14248200 | Jim Crow Creek near Grays River, Wash. | Lat 46°16'37", long 123°33'37", in NE¼SW¼ sec.9, T.9 N., R.7 W., Wahkiacum County, on left bank 600 ft (180 m) downstream from logging bridge, 900 ft (270 m) upstream from Fink Creek, 1.5 mi (2.4 km) upstream from mouth, and 6.0 mi (9.7 km) southeast of the town of Grays River. | 5.48<br>(14.19) | 1964-74‡,<br>1975- | 12- 2-75 | 5.73 | 670 |
| | | Grays River basin | | | | | |
| 14249000 | Grays River above South Fork, near Grays River, Wash. | Lat 46°23'36", long 123°28'39", in NW¼ sec.31, T.11 N., R.6 W., Pacific County, on right bank 500 ft (152 m) upstream from the South Fork, 6.8 mi (10.9 km) northeast of town of Grays River, and at mile 17.8 (28.6 km). | 39.9<br>(103.3) | 1956-75‡,<br>1976- | 12- 2-75 | 10.86 | 8,320 |

‡ Operated as continuous-record gaging station.

Discharge measurements made at miscellaneous sites during water year 1976

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Naselle River basin | | | | |
| South Fork Naselle River | Naselle River | Lat 46°20'39", long 123°48'23", in SW¼SW¼ sec.16, T.10 N., R.9 W., Pacific County, 25 ft (8 m) downstream from private road bridge, 1,800 ft (550 m) downstream from Davis Creek, 1.4 mi (2.3 km) south of Naselle. | 17.9 | 1953,<br>1963,<br>1964-75‡,<br>1976a | 10-29-75 | 1,520 |
| | | Smith Creek basin | | | | |
| Clearwater Creek | Smith Creek | Lat 46°44'59", long 123°45'59", on line between secs.26 and 35, T.15 N., R.9 W., Pacific County, at road crossing, 0.7 mi (1.1 km) upstream from mouth, and 4.5 mi (7.2 km) northwest of Raymond. | 3.98 | 1953,<br>1963,<br>1964-75‡,<br>1976a | 10-30-75 | 76.2 |
| | | North River basin | | | | |
| North River | Willipa Bay | Lat 46°48'27", long 123°50'58", in SE¼SW¼ sec.6, T.15 N., R.9 W., Grays Harbor County, 1.2 mi (1.8 km) upstream from lower Salmon Creek, 10 mi (16.1 km) northwest of Raymond, and at mile 6.9 (11.1 km). | 219 | 1927-75‡,<br>1976a | 10-30-75<br>3-16-76 | 5,630<br>589 |
| | | Chehalis River basin | | | | |
| Chehalis River | Grays Harbor | Lat 46°37'40", long 123°03'35", in SW¼NE¼ sec.9, T.13 N., R.3 W., Lewis County, at State Highway 6 bridge at Adna and at mile 81.3 (130.8 km). | 383 | 1972,<br>1975 | 8-13-76<br>9-10-76<br>9-29-76 | 92<br>84<br>92 |
| South Fork Newaukum River | Newaukum River | Lat 46°36'14", long 122°51'15", in NW¼NE¼ sec.19, T.13 N., R.1 W., Lewis County, at county bridge, 0.3 mi (0.5 km) northeast of Forest, 0.2 mi (0.3 km) upstream from North Fork Newaukum River, and at mile 11.1 (17.9 km). | 66.2 | 1975 | 8-13-76<br>9-10-76 | 40<br>35 |
| North Fork Newaukum Creek | Do...... | Lat 46°39'17", long 122°46'45", in NW¼SW¼ sec.35, T.14 N., R.1 W., Lewis County, at county road, 1.4 mi (2.3 km) upstream from Lucas Creek, 5.5 mi (8.8 km) northeast of Forest, and at mile 6.6 (10.6 km). | 31.5 | 1942-43,<br>1944-45‡,<br>1957-66‡,<br>1967 | 8-16-76<br>9-10-76 | 35<br>8.5 |
| Chehalis River | Grays Harbor | Lat 46°37'40", long 123°03'35", in SW¼NE¼ sec.9, T.13 N., R.3 W., Lewis County, at State Highway 6 bridge at Adna and at mile 81.3 (130.8 km). | 383 | 1972,<br>1975 | 8-13-76<br>9-10-76<br>9-29-76 | 92<br>84<br>92 |
| South Fork Newaukum River | Newaukum River | Lat 46°36'14", long 122°51'15", in NW¼NE¼ sec.19, T.13 N., R.1 W., Lewis County, at county bridge 0.3 mi (0.5 km) northeast of Forest and 0.2 mi (0.3 km) upstream from confluence with North Fork Newaukum River, at at mile 11.1 (17.9 km). | 66.2 | 1975 | 8-13-76<br>9-10-76 | 40<br>35 |
| North Fork Newaukum Creek | Newaukum Creek | Lat 46°39'17", long 122°46'45", in NW¼SW¼ sec.35, T.14 N., R.1 W., Lewis County, at county road, 1.4 mi (2.3 km) upstream from Lucas Creek, 5.5 mi (8.8 km) northeast of Forest, and at mile 6.6 (10.6 km). | 31.5 | 1942-43,<br>1944-45‡,<br>1957-66‡,<br>1967 | 8-16-76<br>9-10-76 | 35<br>8.5 |
| Willamette Creek | Black River | Lat 46°48'57", long 123°11'15", in NW¼SE¼ sec.4, T.15 N., R.4 W., Grays Harbor County, Chehalis Indian Reservation, 20 ft (6 m) upatream from road crossing, 2.5 mi (4.0 km) southeast of Oakville. | --- | 1974-75 | 4-30-76<br>5-27-76 | 5.41<br>2.38 |
| Garrard Creek | Chehalis River | Lat 46°48'34", long 123°16'15", in SW¼SE¼ sec.2, T.15 N., R.5 W., Grays Harbor County, at county road, 2.8 mi (4.5 km) southwest of Oakville, and at mile 2.6 (4.2 km). | 26.5 | 1942-43,<br>1944-45‡,<br>1958,<br>1961 | 8-12-76<br>9- 9-76 | 3.2<br>2.8 |
| Cloquallum Creek | Do...... | Lat 47°00'17", long 123°23'11", in SW¼NW¼ sec.36, T.18 N., R.6 W., Grays Harbor County, 10 ft (3 m) downstream from State Highway 12 bridge, 1.7 mi (2.7 km) east of Elma, 1.9 mi (3.1 km) downstream from Wildcat Creek, and at mile 1.9 (3.1 km). | 64.9 | 1942-43‡,<br>1944-72‡,<br>1973-76a,<br>1974-75 | 8-12-76<br>9- 9-76<br>9-30-76 | 33<br>29<br>31 |
| Wishkah River | Do...... | Lat 47°04'20", long 123°46'09", in NE¼SW¼ sec.2, T.18 N., R.9 W., Grays Harbor County, at Wishkah Road, 0.1 mi (0.2 km) upstream from East Fork, 1.0 mi (1.6 km) north of Aberdeen Gardens, and at mile 12.3 (19.8 km). | 59.9 | 1956,<br>1962-64 | 8-11-76<br>9- 9-76<br>9-30-76 | 59<br>57<br>55 |
| | | Hoquiam River basin | | | | |
| East Fork Hoquiam River | Hoquiam River | Lat 47°03'32", long 123°50'04", in NW¼SW¼ sec.8, T.18 N., R.9 W., Grays Harbor County, 0.2 mi (0.3 km) upstream from Berryman Creek, 3.0 mi (4.8 km) west of Aberdeen Gardens, and at mile 7.3 (11.7 km). | 25.8 | 1942-43 | 8-11-76<br>9- 9-76<br>9-30-76 | 26<br>27<br>24 |

‡ Operated as continuous-record station.

a Operated as crest-stage gage.

Discharge measurements made at miscellaneous sites during water year 1976

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| Quillayute River basin | | | | | | |
| **Soleduck River** | Quillayute River | Lat 48°02'40", long 123°57'28", in lot 4, SE¼SW¼ sec.35, T.30 N., R.10 W., Clallam County, Olympic National Park, 0.1 mi (0.2 km) downstream from South Fork, 2.6 mi (4.2 km) southwest of Fairholm, and at mile 54.9 (88.3 km). | 83.8 | 1918-21‡,<br>1934-71‡,<br>1972-76a | 11-18-75<br>12-19-75<br>3-13-76<br>4- 9-76<br>6-15-76<br>8-10-76 | 1,050<br>548<br>869<br>661<br>1,350<br>311 |
| Do...... | Do...... | Lat 48°04'07", long 124°17'39", in NE¼SW¼ sec.30, T.30 N., R.12 W., Clallam County, at U.S. Highway 101 bridge, 0.25 mi (0.40 km) downstream from Beaver Creek, 0.8 mi (1.3 km) west of Sappho, and at mile 32.0 (51.5 km). | --- | --- | 6-21-76<br>7-19-76<br>8-18-76<br>10- 7-76 | 929<br>574<br>346<br>175 |
| Do...... | Do...... | Lat 47°57'05", long 124°27'58", in NW¼NE¼ sec.11, T.28 N., R.14 W., Clallam County, at bridge 3.9 mi (6.3 km) west of Forks, and at mile 13.9 (22.4 km). | 219 | 1897,<br>1898-1902‡<br>1962 | 11-19-75<br>12-18-75<br>1- 7-76<br>2-12-76<br>4- 8-76<br>6-17-76<br>8-11-76 | 2,640<br>1,510<br>2,200<br>4,590<br>1,360<br>1,260<br>439 |
| **Bogachiel River** | Do...... | Lat 47°52'56", long 124°10'00", in SW¼SE¼ sec.31, T.28 N., R.11 W., Clallam County, Olympic National Park, at Bogachiel shelter, 11.2 mi (18.0 km) southeast of Forks, at mile 26.1 (42.0 km). | --- | --- | 5- 7-76<br>6-22-76<br>7-20-76<br>8-17-76<br>10- 5-76 | 713<br>391<br>312<br>204<br>101 |
| **South Fork Calawah River** | Calawah River | Lat 47°57'09", long 124°14'17", in NE¼NW¼ sec.10, T.28 N., R.12 W., Clallam County, Olympic National Park, 1,000 ft (305 m) upstream from Sitkum River, 6.7 mi (10.8 km) east of Forks, at mile 15.9 (25.6 km). | 23.4 | --- | 5- 6-76<br>6-23-76<br>7-21-76<br>8-18-76<br>10- 6-76 | 151<br>61<br>39<br>32<br>24 |
| **Sitkum River** | South Fork Calawah River | Lat 47°57'12", long 124°14'30", in NW¼NW¼ sec.10, T.28 N., R.12 W., Clallam County, 200 ft (61 m) above mouth, and 6.6 mi (10.6 km) east of Forks. | 30.8 | --- | 5- 6-76<br>6-23-76<br>7-21-76<br>8-18-76<br>10- 6-76 | 202<br>78<br>43<br>40<br>24 |
| **North Fork Calawah River** | Calawah River | Lat 47°58'16", long 124°19'53", in SE¼SE¼ sec.35, T.29 N., R.13 W., Clallam County, 200 ft (61 m) above mouth, 2.8 mi (4.5 km) northeast of Forks. | 47.2 | --- | 5- 6-76<br>6-23-76<br>7-21-76<br>8-18-76<br>10- 6-76 | 206<br>105<br>71<br>47<br>31 |
| **West Fork Dickey River** | Dickey River | Lat 48°05'17", long 124°30'08", in NW¼SE¼ sec.21, T.30 N., R.14 W., Clallam County, 0.8 mi (1.3 km) downstream from Lake Dickey, 11 mi (18 km) northwest of Forks, and at mile 19.6 (31.5 km). | --- | --- | 5- 6-76<br>6-23-76<br>7-21-76<br>8-18-76<br>10- 6-76 | 19<br>31<br>6.9<br>5.5<br>5.8 |
| **East Fork Dickey River** | Do...... | Lat 48°00'22", long 124°28'35", in SW¼NW¼ sec.23, T.29 N., R.14 W., Clallam County, at bridge crossing 0.3 mi (0.5 km) downstream from Thunder Creek, 5.9 mi (9.5 km) northwest of Forks, and at mile 5.8 (9.3 km). | --- | --- | 6-23-76<br>7-21-76<br>8-18-76<br>10- 6-76 | 44<br>23<br>20<br>18 |
| Do...... | Do...... | Lat 48°00'31", long 124°30'36", in NW¼NE¼ sec.21, T.29 N., R.14 W., Clallam County, 7.2 mi (11.6 km) northwest of Forks, and at mile 3.6 (5.8 km). | --- | --- | 5- 3-76 | 51 |
| **Dickey River** | Quillayute River | Lat 47°57'53", long 124°32'53", in NE¼NE¼ sec.6, T.28 N., R.14 W., Clallam county, 1.0 mi (1.6 km) upstream from Colby Creek, 5.5 mi (8.8 km) northeast of La Push and at mile 6.0 (9.7 km). | 86.3 | 1962-73‡,<br>1974-76a | 11-19-75<br>12-18-75<br>4- 8-76<br>8-10-76 | 683<br>345<br>256<br>32 |
| Ozette River basin | | | | | | |
| **Crooked Creek** | Ozette Lake | Lat 48°06'07", long 124°35'19", in NW¼SE¼ sec.14, T.30 N., R.15 W., Clallam County, at wooden bridge on undeveloped logging road, 1.2 mi (1.9 km) southeast of Swan Bay, 5.2 mi (8.4 km) southeast of Ozette Resort. | 10.41 | --- | 1-14-76<br>2-18-76<br>3-30-76<br>4-28-76<br>5-26-76<br>6-23-76<br>7-19-76<br>8-25-76<br>9-30-76 | 354<br>155<br>55.2<br>12.2<br>44.2<br>7.6<br>5.8<br>12.1<br>2.5 |
| **Big River** | Do...... | Lat 48°07'53", long 124°36'10", in NE¼SE¼ sec.3, T.30 N., R.15 W., Clallam County, 3.2 mi (5.1 km) southeast of Ozette Resort, 0.2 mi (0.3 km) upstream from Dunham Creek. | 20.64 | --- | 7-19-76<br>8-25-76<br>9-29-76 | 11.8<br>24.6<br>10.8 |
| **Dunham Creek** | Big River | Lat 48°07'43", long 124°35'48", in NW¼SW¼ sec.2, T.30 N., R.15 W., Clallam County, 3.8 mi (6.1 km) southeast of Ozette Resort, 0.3 mi (0.5 km) upstream from mouth. | 1.77 | --- | 7-19-76<br>8-25-76<br>9-29-76 | .63<br>1.60<br>.50 |

‡ Operated as continuous-record station.

a Operated as crest-stage gage.

Discharge measurements made at miscellaneous sites during water year 1976

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Ozette River basin--Continued | | | | |
| Big River | Ozette Lake | Lat 48°07'36", long 124°36'16", in SE¼SE¼ sec.3, T.30 N., R.15 W., Clallam County, at old logging bridge on road to Swan Bay, 3.3 mi (5.3 km) southeast of Ozette Resort. | 22.52 | --- | 1-14-76<br>2-18-76<br>3-29-76<br>4-28-76<br>5-26-76<br>6-23-76 | 5.78<br>382<br>174<br>45.6<br>140<br>36.1 |
| Umbrella Creek | Do...... | Lat 48°08'07", long 124°37'18", in NW¼NW¼ sec.3, T.30 N., R.15 W., Clallam County, at concrete bridge on Ozette Road, 2.5 mi (4.0 km) southeast of Ozette. | 11.4 | 1962-65 | 1-14-76<br>2-17-76<br>3-30-76<br>4-26-76<br>5-24-76<br>6-21-76<br>7-19-76<br>8-25-76<br>9-27-76 | 219<br>386<br>73.2<br>24.1<br>7.5<br>13.6<br>6.93<br>15.2<br>6.31 |
| | | Waatch River basin | | | | |
| Waatch River | Mukkaw Bay (Pacific Ocean) | Lat 48°21'24", long 124°37'42", in NE¼SW¼ sec.15, T.33 N., R.15 W., Clallam County, 0.8 mi (1.3 km) southwest of Neah Bay. | 10.7 | --- | 6-25-76<br>9- 9-76 | 11.9<br>18.2 |
| | | Village Creek basin | | | | |
| Village Creek | Neah Bay | Lat 48°22'10", long 124°37'40", in NE¼SW¼ sec.10, T.33 N., R.15 W., Clallam County, at road crossing 0.3 mi (0.5 km) above mouth, and 0.3 mi (0.5 km) west of Neah Bay. | 0.65 | --- | 4-14-76<br>5- 4-76<br>6-18-76<br>8- 9-76 | 1.72<br>.42<br>2.79<br>.21 |
| | | Elwha River basin | | | | |
| Unnamed tributary[h] | Elwha West Slough | Lat 48°08'40", long 123°33'17", on south line of SW¼SE¼ sec.27, T.31 N., R.7 W., Clallam County, at road crossing, 2.1 mi (3.4 km) northwest of Port Angeles city limits. | --- | --- | 3-18-76<br>4-28-76<br>6- 1-76<br>7- 7-76<br>9- 2-76 | 0.94<br>.74<br>1.15<br>1.61<br>.61 |
| | | Minor Streams tributary to Hood Canal | | | | |
| Port Gamble Inlet | Port Gamble | Lat 47°47'57", long 122°34'51", in NW¼SW¼ sec.29, T.27 N., R.2 E., Kitsap County, at road crossing 0.7 mi (1.1 km) southwest of Striebels Corner, and 3.8 mi (6.1 km) south of Port Gamble. | 5.86 | --- | 1-21-76<br>3- 3-76<br>4- 6-76<br>4-27-76<br>5-25-76<br>7-12-76<br>9- 1-76<br>9-28-76 | 4.65<br>7.38<br>5.36<br>3.50<br>2.33<br>1.68<br>1.34<br>1.19 |
| Unnamed tributary | Do...... | Lat 47°49'48", long 122°33'39", in NW¼SW¼ sec.16, T.27 N., R.2 E., Kitsap County, 1.0 mi (1.6 km) north of Miller Lake outlet. | --- | --- | 4-27-76 | 1.05 |
| Do...... | Do...... | Lat 47°50'30", long 122°33'52", in SE¼SE¼ sec.8, T.27 N., R.2 E., Kitsap County, at road crossing 1.2 mi (1.9 km) southeast of Port Gamble. | .45 | --- | 2- 2-76<br>3- 3-76<br>4-28-76<br>5-25-76<br>7-13-76<br>9- 1-76<br>9-28-76 | .64<br>1.03<br>1.11<br>.49<br>.50<br>.69<br>.57 |
| Do...... | Do...... | Lat 47°51'16", long 122°33'58", in SE¼SE¼ sec.5, T.27 N., R.2 E., Kitsap County, at road crossing 0.1 mi (0.2 km) north of Little Boston and 0.8 mi (1.3 km) east of Port Gamble. | .69 | --- | 2- 2-76<br>3- 3-76<br>4-27-76<br>5-25-76<br>7-13-76<br>9- 1-76<br>9-28-76 | .58<br>.58<br>.57<br>.28<br>.32<br>.38<br>.20 |
| | | Minor Streams tributary to Puget Sound | | | | |
| Grovers Creek | Miller Bay | Lat 47°46'25", long 122°33'23", near south line of NW¼ sec.4, T.26 N., R.2 E., Kitsap County, at road crossing 2.3 mi (3.7 km) northwest of Indianola. | 6.45 | 1947,<br>1958 | 11- 6-75<br>1-20-76<br>3- 3-76<br>4- 6-76<br>4-27-76<br>5-25-76<br>7-12-76<br>9- 1-76<br>9-28-76 | 8.36<br>10.9<br>15.2<br>11.8<br>7.19<br>3.49<br>2.08<br>2.52<br>1.79 |
| Unnamed tributary | Do...... | Lat 47°44'49", long 122°33'32", in SW¼NW¼ sec.16, T.26 N., R.2 E., Kitsap County, at road crossing 1.1 mi (1.8 km) north of Suquamish. | .62 | 1947,<br>1958 | 1-21-76<br>2-24-76<br>4- 6-76<br>4-26-76<br>5-24-76<br>9- 1-76<br>9-27-76 | .50<br>3.00<br>1.48<br>.93<br>.36<br>.21<br>.12 |

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[h] Locally known as Bosco Creek.

Discharge measurements made at miscellaneous sites during water year 1976

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Minor Streams tributary to Puget Sound--Continued | | | | |
| Unnamed tributary | Miller Bay | Lat 47°44'51", long 122°33'36", in SW¼NW¼ sec.16, T.26 N., R.2 E., Kitsap County, at road crossing 1.2 mi (1.9 km) north of Suquamish. | 0.22 | --- | 1-21-76 | 0.40 |
| | | | | | 2-24-76 | 1.40 |
| | | | | | 4- 6-76 | .53 |
| | | | | | 4-26-76 | .59 |
| | | | | | 5-24-76 | .51 |
| | | | | | 7-13-76 | .35 |
| | | | | | 9- 1-76 | .39 |
| | | | | | 9-27-76 | .38 |
| | | Streams on Bainbridge Island | | | | |
| Unnamed tributary | Puget Sound | Lat 47°34'30", long 122°30'25", in NW¼NE¼ sec.14, T.24 N., R.2 E., Kitsap County, 200 ft (61 m) upstream from mouth. | b0.14 | 1961 | 6-10-75 | c0 |
| | | Minor Streams tributary to Puget Sound | | | | |
| Port Orchard tributary | Port Orchard | Lat 47°42'45", long 122°34'19", in NW¼SE¼ sec.29, T.26 N., R.2 E., Kitsap County, 200 ft (61 m) downstream from State Highway 305 crossing, 200 ft (61 m) upstream from mouth and 1.6 mi (2.6 km) southwest of Suquamish. | 2.35 | --- | 1-20-76 | 1.79 |
| | | | | | 2-24-76 | 3.45 |
| | | | | | 4- 6-76 | 1.42 |
| | | | | | 4-26-76 | .85 |
| | | | | | 5-24-76 | .47 |
| | | | | | 9- 1-76 | .15 |
| | | | | | 9-27-76 | .25 |
| Unnamed tributary | Do...... | Lat 47°42'29", long 122°36'19", in NW¼NW¼ sec.31, T.26 N., R.2 E., Kitsap County, at road crossing 500 ft (152 m) upstream from mouth, and 0.8 mi (1.3 km) northeast of Keyport. | 1.79 | 1947, 1958-59 | 11- 6-75 | 1.20 |
| | | | | | 1-20-76 | .92 |
| | | | | | 2-24-76 | 1.29 |
| | | | | | 4- 6-76 | .81 |
| | | | | | 4-26-76 | .50 |
| | | | | | 5-24-76 | .30 |
| Do...... | Do...... | Lat 47°42'48", long 122°36'45", in NW¼SE¼ sec.25, T.26 N., R.1 E., 300 ft (91 m) upstream from mouth, and 0.5 mi (0.8 km) east of Lemolo. | --- | 1959 | 11- 6-75 | 5.02 |
| | | Minor Streams tributary to Skookum Inlet | | | | |
| Lynch Creek | Skookum Inlet | Lat 47°08'24", long 123°04'42", in NE¼ sec.17, T.19 N., R.3 W., Mason County, 500 ft (152 m) above mouth, 1 mi (1.6 km) northeast of Kamilche. | --- | --- | 5-24-76 | 4.70 |
| Little Creek | Skookum Creek | Lat 47°08'13", long 123°05'42", in NW¼ sec.17. T.19 N., R.3 W., Mason County, at U.S. Highway 101 crossing, 0.5 mi (0.8 km) north of Kamilche. | --- | --- | 4-30-76 | 1.56 |
| | | Deschutes River basin | | | | |
| Deschutes River | Budd Inlet | Lat 46°51'08", long 122°40'03", in SE¼SW¼ sec.22, T.16 N., R.1 E., Thurston County, at county road crossing, 0.4 mi (0.6 km) downstream from outlet of Reichel Lake, 2.7 mi (4.3 km) southeast of Rainier, and at mile 25.9 (41.7 km). | 89.8 | 1949-75‡, 1976a | 10-20-75 | 211 |
| | | Nisqually River basin | | | | |
| Muck Creek | Nisqually River | Lat 47°00'20", long 122°32'32", in SW¼NW¼ sec.34, T.18 N., R.2 E., Pierce County, 0.3 mi (0.5 km) downstream from Muck Lake at north edge of Roy. | 86.8 | 1949, 1956-72‡, 1973-76a, 1975 | 10-21-75 | 1.30 |
| | | | | | 11-17-75 | 24.6 |
| | | | | | 7- 9-76 | 4.97 |
| | | | | | 8- 9-76 | 2.26 |
| | | | | | 9-10-76 | 3.32 |
| Do...... | Do...... | Lat 46°59'49", long 122°37'37", in SW¼SW¼ sec.36, T.18 N., R.1 E., Pierce County, Fort Lewis Military Reservation, at bridge 500 ft (152 m) upstream from mouth, and 3.8 mi (6.1 km) west of Roy. Note.--Location revised from that published in 1975. | 92.0 | 1975 | 10-21-75 | 2.40 |
| | | | | | 11-17-75 | 1.45 |
| | | | | | 12-11-75 | 362 |
| | | | | | 1-14-76 | 344 |
| | | | | | 2-13-76 | 138 |
| | | | | | 3-24-76 | 145 |
| | | | | | 4-23-76 | 116 |
| | | | | | 5-14-76 | 61.5 |
| | | | | | 6-15-76 | 24.9 |
| | | | | | 7- 9-76 | 15.0 |
| | | | | | 8- 9-76 | 10.2 |
| | | | | | 9-10-76 | 6.91 |
| Nisqually River | Puget Sound | Lat 47°04'18", long 122°42'11", in SE¼ sec.38, T.18 N., R.1 E., Pierce County, at bridge on Interstate 5, 1.0 mi (1.6 km) north of Nisqually at river mile 2.4 (3.9 km). | 712 | 1960, 1962, 1971-73 | 11- 5-75 | 2,730 |
| | | | | | 1- 6-76 | 4,140 |
| | | | | | 3-18-76 | 2,900 |
| | | | | | 6-28-76 | 1,190 |
| | | | | | 9-22-76 | 998 |
| | | Chambers Creek basin | | | | |
| Clover Creek | Chambers Creek | Lat 47°09'19", long 122°31'17", in NW¼NW¼ sec.11, T.19 N., R.2 E., Pierce County, at private road bridge (Clover Crest Estates) 100 ft (30.5 m) upstream from 112th St. SW. bridge in Lakewood. | 75.9 | 1939-44, 1951, 1960, 1975 | 11- 7-75 | 35.5 |
| | | | | | 12- 8-75 | 132 |
| | | | | | 3- 2-76 | 123 |
| | | | | | 5- 7-76 | 49.8 |
| | | | | | 7-12-76 | 13.0 |
| | | | | | 8-11-76 | 4.87 |

‡ Operated as continuous-record station.
a Operated as crest-stage gage.
b Approximately.
c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1976

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Chambers Creek basin--Continued | | | | |
| Chambers Creek | Puget Sound | Lat 47°10'41", long 122°32'05", in SW¼NE¼ sec.34, T.20 N., R.2 E., Pierce County, 150 ft downstream from Steilacoom Boulevard bridge along right bank at Steilacoom Lake outlet in Tacoma. | 89.4 | 1938-40‡,<br>1943,<br>1961-63,<br>1975 | 11- 7-75 | 42.1 |
| | | | | | 12-10-75 | 180 |
| | | | | | 3- 2-76 | 178 |
| | | | | | 5- 6-76 | 84.1 |
| | | | | | 7-12-76 | 27.7 |
| Do...... | Do...... | Lat 47°11'55", long 122°31'40", in NE¼NE¼ sec.27, T.20 N., R.2 E., on left bank 0.3 mi (0.5 km) downstream from Leach Creek, 1.5 mi (2.4 km) downstream from outlet of Steilacoom Lake and 4.0 mi (6.4 km) northeast of Steilacoom. | 104 | 1937-40‡,<br>1941,<br>1943-65‡,<br>1966,<br>1972-73,<br>1975 | 11- 7-75 | 99.4 |
| | | | | | 12-10-75 | 255 |
| | | | | | 3- 5-76 | 201 |
| | | | | | 4- 1-76 | 169 |
| | | | | | 5- 6-76 | 122 |
| | | | | | 7-13-76 | 55.7 |
| | | Judd Creek basin | | | | |
| Judd Creek | Quartermaster Harbor | Lat 47°24'40", long 122°28'18", in NE¼SW¼ sec.7, T.22 N., R.3 E., King County, at culvert at 216th Street SW., 1.0 mi (1.6 km) upstream from mouth, and 1.5 mi (2.4 km) north of Burton. | 4.41 | 1968-75‡ | 10-31-75 | 4.41 |
| | | | | | 9-29-76 | 1.57 |
| | | Puyallup River basin | | | | |
| Puyallup River | Commencement Bay | Lat 47°05'21", long 122°12'43", in SE¼NE¼ sec.31, T.19 N., R.5 E., Pierce County, at bridge on Orting-Kapowsin road, 0.7 mi (1.1 km) southwest of Orting and at mile 22.2 (35.7 km). | --- | --- | 10- 8-75 | 277 |
| | | | | | 12- 8-75 | 3,070 |
| | | | | | 1-30-76 | 685 |
| | | | | | 4- 8-76 | 821 |
| | | | | | 5-26-76 | 580 |
| | | | | | 8- 4-76 | 643 |
| | | | | | 9-24-76 | 521 |
| South Prairie Creek | Carbon River | Lat 47°06'34", long 122°08'43", in NE¼NE¼ sec.27, T.19 N., R.5 E., Pierce County, at State Highway 162 bridge, 1.2 mi (1.9 km) northeast of Crocker, and at mile 1.2 (1.9 km). | 89.5 | --- | 10- 8-75 | 92 |
| | | | | | 12- 8-75 | 1,570 |
| | | | | | 1-30-76 | 338 |
| | | | | | 4- 8-76 | 272 |
| | | | | | 5-27-76 | 212 |
| | | | | | 8- 3-76 | 84 |
| | | | | | 9-24-76 | 101 |
| Puyallup River | Commencement Bay | Lat 47°08'25", long 122°13'31", in SW¼SW¼ sec.7, T.19 N., R.5 E., Pierce County, at county road bridge 0.8 mi (1.3 km) downstream from Carbon River, 0.5 mi (0.8 km) east of McMillin, and at mile 17.1 (27.5 km). | 417 | --- | 10- 8-75 | 640 |
| | | | | | 12- 8-75 | 10,700 |
| | | | | | 1-30-76 | 2,500 |
| | | | | | 4- 8-76 | 1,640 |
| | | | | | 5-26-76 | 1,270 |
| | | | | | 8- 3-76 | 1,130 |
| | | | | | 9-24-76 | 836 |
| White River | Puyallup River | Lat 47°08'48", long 121°38'44", in NW¼SE¼ sec.10, T.19 N., R.9 E., Pierce County, 0.7 mi (1.1 km) southeast of Greenwater, 1.0 mi (1.6 km) upstream from Greenwater River, and at mile 46.8 (75.3 km). | 216 | 1911,<br>1912‡,<br>1929-75‡ | 10-31-75 | 888 |
| | | Duwamish River basin | | | | |
| Green River | Duwamish River | Lat 47°16'57", long 122°03'13", in SW¼NW¼ sec.28, T.21 N., R.6 E., King County, at highway bridge 0.8 mi (1.3 km) upstream from Newaukum Creek and 3 mi (4.8 km) southeast of Black Diamond. | 285 | 1940-48‡,<br>1962,<br>1965,<br>1969 | 10- 2-75 | 170 |
| | | | | | 12- 7-75 | 8,700 |
| | | | | | 1-14-76 | 1,790 |
| | | | | | 4- 7-76 | 2,070 |
| | | | | | 6-10-76 | 323 |
| | | | | | 9-22-76 | 229 |
| | | Lake Washington basin | | | | |
| Cedar River | Lake Washington | Lat 47°23'41", long 121°50'41", in SW¼NW¼ sec.18, T.22 N., R.8 E., King County, 3 mi (4.8 km) southwest of Cedar Falls and at river mile 29.7 (47.8 km). | --- | --- | 7-26-76 | 140 |
| | | | | | 8-17-76 | 83.2 |
| Do...... | Do...... | Lat 47°23'18", long 121°51'49", in SW¼SW¼ sec.13, T.22 N., R.7 E., King County, 4 mi (6 km) southwest of Cedar Falls at Barneston bridge and at mile 28.7 (46.2 km). | 97.0 | --- | 6- 8-76 | 304 |
| | | | | | 6-21-76 | 1,080 |
| | | | | | 7-26-76 | 276 |
| | | | | | 8-17-76 | 236 |
| Do...... | Do...... | Lat 47°23'22", long 121°55'08", in SW¼SE¼ sec 16, T.22 N., R.7 E., King County, at former Trude Bridge site, 2.6 mi (4.2 km) northeast of Landsburg and at river mile 25.1 (40.4 km). | --- | --- | 7-26-76 | 361 |
| | | | | | 8-17-76 | 327 |
| Rock Creek | Cedar River | Lat 47°23'39", long 121°56'48", in SE¼NW¼ sec.17, T.22 N., R.7 E., King County, 500 ft (152 m) upstream from mouth and 1.8 mi (2.9 km) northeast of Landsburg. | --- | --- | 7-26-76 | 5.62 |
| | | | | | 8-17-76 | 14.7 |
| | | Snohomish River basin | | | | |
| South Fork Snoqualmie River | Snoqualmie River | Lat 47°27'10", long 121°43'00", in NE¼NE¼ sec.25, T.23 N., R.8 E., King County, at bridge on Edgewick Road 4.3 mi (6.9 km) southwest of North Bend at mile 8.6 (13.8 km). | 65.9 | 1945,<br>1962-65‡ | 6- 8-76 | 652 |
| | | | | | 6-21-76 | 683 |
| | | | | | 6-28-76 | 530 |
| | | | | | 7- 2-76 | 536 |
| | | | | | 7-26-76 | 255 |
| | | | | | 8-17-76 | 189 |

‡ Operated as continuous-record station.

Discharge measurements made at miscellaneous sites during water year 1976

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Snohomish River basin--Continued | | | | |
| Boxley Creek | South Fork Snoqualmie River | Lat 47°27'22", long 121°43'08", in SW¼SE¼ sec.24, T.23 N., R.8 E., King County, 100 ft (30.5 m) above mouth, under power line, and 2.6 mi (4.2 km) southeast of Tanner. | 6.43 | 1962, 1963 | 7-26-76 | 52.0 |
| | | | | | 8-17-76 | 41.1 |
| South Fork Snoqualmie River | Snoqualmie River | Lat 47°29'18", long 121°47'03", in SW¼SE¼ sec.9, T.23 N., R.8 E., King County, 0.5 mi (0.8 km) south of North Bend and 2.8 mi (4.5 km) upstream from mouth. | 81.7 | 1907, 1907-26‡, 1929-38‡, 1945-50‡, 1957, 1961-74‡ | 6- 8-76 | 767 |
| | | | | | 6-21-76 | 826 |
| | | | | | 6-28-76 | 685 |
| | | | | | 7- 2-76 | 680 |
| | | | | | 7-26-76 | 334 |
| | | | | | 8-17-76 | 255 |
| Tokul Creek | Do...... | Lat 47°33'13", long 121°50'09", in SE¼NW¼ sec.19, T.24 N., R.8 E., King County, 200 ft (61 m) upstream from fish hatchery diversion, 600 ft (183 m) downstream from State Highway 522, 1.8 mi (2.9 km) northeast of Snoqualmie. | 32.2 | 1907-14‡, 1926, 1927, 1929-31‡, 1945, 1957, 1959-61a, 1962-75 | 3-19-75 | c199 |
| | | | | | 9-23-75 | c27.4 |
| | | | | | 11-28-75 | 266 |
| | | | | | 1-22-76 | 198 |
| | | | | | 3-30-76 | 140 |
| | | | | | 5-10-76 | 87.9 |
| | | | | | 7-16-76 | 49.7 |
| | | | | | 9-28-76 | 33.0 |
| Pilchuck River | Snohomish River | Lat 48°03'15", long 121°57'25", in SE¼ sec.30, T.30 N., R.7 E., Snohomish County, 200 ft (61 m) upstream from highway bridge, and 2 mi (3.2 km) south of Granite Falls. | 54.5 | 1944-57‡, 1958-75a | 8- 2-76 | 71.6 |
| Snohomish River | Port Gardner | Lat 47°54'38", long 122°05'52", in NE¼SE¼ sec.13, T.28 N., R.5 E., Snohomish County, at old State Highway 9 bridge at Snohomish. | 1,714 | 1941-66‡, 1975 | 12- 3-75 | 95,600 |
| | | | | | 12- 7-75 | 37,400 |
| | | Minor Streams tributary to Possession Sound | | | | |
| Quilceda Creek | Ebey Slough | Lat 48°06'17", long 122°09'43", in NE¼NE¼ sec.9, T.30 N., R.5 E., Snohomish County, 150 ft (46 m) downstream from Middle Fork 3.5 mi (5.6 km) north of Marysville. | 15.4 | 1946-69‡, 1975 | 10- 7-75 | 6.26 |
| | | | | | 11- 4-75 | 25.1 |
| | | | | | 12-11-75 | 50.5 |
| | | | | | 12-17-75 | 31.1 |
| | | | | | 1- 7-76 | 46.5 |
| | | | | | 2- 3-76 | 24.3 |
| | | | | | 3- 3-76 | 32.0 |
| | | | | | 4- 7-76 | 23.4 |
| | | | | | 5- 3-76 | 19.1 |
| | | | | | 6- 2-76 | 18.5 |
| | | | | | 7-12-76 | 7.95 |
| | | | | | 8- 3-76 | 5.76 |
| | | | | | 9- 8-76 | 6.56 |
| West Fork Quilceda Creek | Quilceda Creek | Lat 48°06'03", long 122°11'05", in SE¼NE¼ sec.8, T.30 N., R.5 E., Snohomish County, at county road crossing 0.5 mi (0.8 km) west of Kruse. | 9.41 | 1946-47‡, 1957, 1959-60, 1975 | 10- 7-75 | 1.91 |
| | | | | | 11- 4-75 | 9.95 |
| | | | | | 12-11-75 | 27.2 |
| | | | | | 1- 7-76 | 31.2 |
| | | | | | 2- 3-76 | 14.0 |
| | | | | | 3- 3-76 | 16.5 |
| | | | | | 4- 7-76 | 13.8 |
| | | | | | 5- 3-76 | 9.76 |
| | | | | | 6- 2-76 | 11.5 |
| | | | | | 7-12-76 | 2.06 |
| | | | | | 8- 3-76 | 2.24 |
| | | | | | 9- 8-76 | 2.42 |
| Unnamed tributary | Do...... | Lat 48°04'34", long 122°08'47", in NE¼NE¼ sec.20, T.30 N., R.5 E., Snohomish County, at road crossing at Boeing Test Facility perimeter boundary 0.8 mi (1.3 km) upstream from mouth and 1.4 mi (2.3 km) north of Marysville. | 2.88 | 1975 | 10- 7-75 | .73 |
| | | | | | 11- 4-75 | 1.88 |
| | | | | | 12-11-75 | 6.36 |
| | | | | | 1- 7-76 | 4.83 |
| | | | | | 2- 3-76 | 3.28 |
| | | | | | 3- 3-76 | 3.96 |
| | | | | | 4- 7-76 | 3.62 |
| | | | | | 5- 3-76 | 3.69 |
| | | | | | 6- 2-76 | 3.78 |
| | | | | | 7-12-76 | .75 |
| | | | | | 8- 3-76 | .85 |
| | | | | | 9- 8-76 | .99 |
| Sturgeon Creek | Do...... | Lat 48°03'27", long 122°09'16", in NE¼SW¼ sec.29, T.30 N., R.5 E., Snohomish County, at end of "Old Tulalip Road" 0.3 mi (0.5 km) upstream from mouth and 0.6 mi (1.0 km) west of Marysville. | 1.87 | 1975 | 11- 4-75 | 1.51 |
| | | | | | 12-11-75 | 2.90 |
| | | | | | 1- 8-76 | 3.14 |
| | | | | | 2- 3-76 | 2.14 |
| | | | | | 3- 3-76 | 2.10 |
| | | | | | 4- 7-76 | 2.18 |
| | | | | | 5- 3-76 | 2.94 |
| | | | | | 6- 2-76 | 2.50 |
| | | | | | 7-13-76 | .85 |
| | | | | | 8- 5-76 | .46 |
| | | | | | 9- 8-76 | .88 |
| Mission Creek below John Sam Lake | Tulalip Bay | Lat 48°06'42", long 122°14'52", in SE¼SE¼ sec.2, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, at road crossing 200 ft (61 m) west of lake outlet, 3.6 mi (5.8 km) northeast of Tulalip. | .33 | 1974-75 | 10- 7-75 | 0 |
| | | | | | 12-11-75 | .64 |
| | | | | | 1- 7-76 | .27 |
| | | | | | 2- 3-76 | .34 |
| | | | | | 3- 3-76 | .13 |
| | | | | | 4- 7-76 | 1.03 |
| | | | | | 5- 3-76 | .08 |
| | | | | | 6- 2-76 | .04 |
| | | | | | 7-12-76 | .05 |
| | | | | | 8- 3-76 | 0 |
| | | | | | 9- 8-76 | 0 |

‡ Operated as continuous-record station.
a Operated as crest-stage gage.
c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1976

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Minor Streams tributary to Possession Sound--continued | | | | |
| Mission Creek | Tulalip Bay | Lat 48°05'08", long 122°14'50", in NW¼SW¼ sec.13, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, 0.2 mi (0.3 km) upstream from unnamed tributary and 2.3 mi (3.7 km) northeast of Tulalip. | 1.34 | 1975 | 10- 7-75 | 0.97 |
| | | | | | 11- 5-75 | .88 |
| | | | | | 12-12-75 | 2.50 |
| | | | | | 1- 7-76 | 1.75 |
| | | | | | 2- 3-76 | 1.48 |
| | | | | | 3- 2-76 | 1.48 |
| | | | | | 4- 7-76 | 1.53 |
| | | | | | 5- 3-76 | 1.22 |
| | | | | | 6- 3-76 | .98 |
| | | | | | 7-12-76 | .65 |
| | | | | | 8- 4-76 | .71 |
| | | | | | 9- 9-76 | .77 |
| Unnamed tributary | Mission Creek | Lat 48°05'00", long 122°14'58", in NE¼SE¼ sec.14, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, 0.3 mi (0.5 km) northwesterly on road near south corner of sections 13 and 14 and 100 ft (30 m) upstream from mouth and 2.1 mi (3.4 km) northeast of Tulalip. | 1.33 | 1975 | 10- 7-75 | .05 |
| | | | | | 11- 5-75 | .28 |
| | | | | | 12-12-75 | 2.11 |
| | | | | | 1- 7-76 | 2.33 |
| | | | | | 2- 3-76 | .84 |
| | | | | | 3- 2-76 | 1.14 |
| | | | | | 4- 7-76 | .94 |
| | | | | | 5- 3-76 | .95 |
| | | | | | 6- 2-76 | .74 |
| | | | | | 7-12-76 | .03 |
| | | | | | 8- 4-76 | .01 |
| | | | | | 9- 8-76 | .06 |
| Do...... | Do...... | Lat 48°05'15", long 122°13'37", in SE¼NE¼ sec.13, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, 1,200 ft (366 m) downstream from Ross Lake, and 3.2 mi (5.2 km) northeast of Tulalip. | .74 | 1974-75 | 10- 7-75 | 0 |
| | | | | | 11- 4-75 | 0 |
| | | | | | 12-11-75 | .72 |
| | | | | | 1- 7-76 | .51 |
| | | | | | 2- 3-76 | .26 |
| | | | | | 3- 3-76 | .34 |
| | | | | | 4- 7-76 | .31 |
| | | | | | 5- 3-76 | .24 |
| | | | | | 6- 2-76 | .03 |
| | | | | | 7-12-76 | 0 |
| | | | | | 8- 3-76 | 0 |
| | | | | | 9- 9-76 | 0 |
| Unnamed tributary | Do...... | Lat 48°04'45", long 122°14'36", in NW¼NW¼ sec.24, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, at road crossing 2.4 mi (3.9 km) northeast of Tulalip. | 1.57 | 1975 | 10- 7-75 | .39 |
| | | | | | 11- 5-75 | .38 |
| | | | | | 12-12-75 | 1.51 |
| | | | | | 1- 7-76 | 1.16 |
| | | | | | 2- 3-76 | .86 |
| | | | | | 3- 2-76 | .91 |
| | | | | | 4- 7-76 | 1.04 |
| | | | | | 5- 3-76 | .93 |
| | | | | | 6- 2-76 | .73 |
| | | | | | 7-12-76 | .34 |
| | | | | | 8- 4-76 | .30 |
| | | | | | 9- 8-76 | .33 |
| Unnamed Spring | Do...... | Lat 48°03'27", long 122°14'19", in NE¼SW¼ sec.25, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, 1.2 mi (1.9 km) north of Priest Point Grange and 2.4 mi (3.9 km) northeasterly from Tulalip. | --- | 1975 | 7-12-76 | .08 |
| | | | | | 8- 4-76 | 0 |
| Mission Creek | Tulalip Bay | Lat 48°03'13", long 122°14'52", in SE¼SE¼ sec.26, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation 1.3 mi (2.1 km) northwest of Priest Point Grange. | 6.58 | 1975 | 10- 7-75 | 3.13 |
| | | | | | 11- 5-75 | 4.06 |
| | | | | | 12-12-75 | 11.5 |
| | | | | | 1- 7-76 | 8.56 |
| | | | | | 2- 3-76 | 6.95 |
| | | | | | 3- 2-76 | 8.19 |
| | | | | | 4- 7-76 | 7.33 |
| | | | | | 5- 3-76 | 7.01 |
| | | | | | 6- 3-76 | 7.38 |
| | | | | | 7-12-76 | 1.21 |
| | | | | | 8- 4-76 | 2.36 |
| | | | | | 9- 8-76 | 2.83 |
| Tulalip Creek | Tulalip Bay | Lat 48°07'24", long 122°18'24" in NE¼NW¼ sec.4, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, at Fire Trail Road 0.3 mi (0.5 km) southwest of Lake Shoecraft, and 4.0 mi (6.4 km) north of Tulalip. | 6.12 | 1946,<br>1957,<br>1972,<br>1974-75 | 10- 7-75 | <.01 |
| | | | | | 11- 5-75 | <.01 |
| | | | | | 12-11-75 | 13.2 |
| | | | | | 1- 8-76 | 9.36 |
| | | | | | 2- 3-76 | 6.26 |
| | | | | | 3- 3-76 | 5.25 |
| | | | | | 4- 8-76 | 10.3 |
| | | | | | 5- 3-76 | .06 |
| | | | | | 6- 2-76 | .10 |
| | | | | | 7-12-76 | .01 |
| | | | | | 8- 3-76 | .03 |
| | | | | | 9- 8-76 | .02 |
| Tulalip Creek below Weallup Lake | Do...... | Lat 48°06'43", long 122°17'58", in SW¼SE¼ sec.4, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, at road crossing 200 ft (61 m) downstream from Weallup Lake and 3.2 mi (5.2 km) north of Tulalip. | f8.31 | 1974-75 | 10- 7-75 | .05 |
| | | | | | 11- 5-75 | .05 |
| | | | | | 12-11-75 | 18.9 |
| | | | | | 1- 8-76 | 9.98 |
| | | | | | 2- 3-76 | 8.94 |
| | | | | | 3- 3-76 | 6.72 |
| | | | | | 4- 8-76 | 14.0 |
| | | | | | 5- 3-76 | 1.16 |
| | | | | | 6- 2-76 | .19 |
| | | | | | 7-12-76 | .04 |
| | | | | | 8- 4-76 | .05 |
| | | | | | 9- 8-76 | e.01 |

< Less than.
e Estimated.
f Recomputed

Discharge measurements made at miscellaneous sites during water year 1976

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| Minor Streams tributary to Possession Sound--Continued | | | | | | |
| Tulalip Creek | Tulalip Bay | Lat 48°05'52", long 122°17'15", in SW¼SW¼ sec.10, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, 0.5 mi (0.8 km) upstream from East Branch, and 2.2 mi (3.5 km) north of Tulalip. | 9.74 | 1975 | 10- 7-75 | 4.46 |
| | | | | | 11- 5-75 | 4.23 |
| | | | | | 12-12-75 | 20.0 |
| | | | | | 1- 8-76 | 16.9 |
| | | | | | 2- 4-76 | 12.5 |
| | | | | | 3- 3-76 | 10.8 |
| | | | | | 4- 7-76 | 17.3 |
| | | | | | 5- 3-76 | 6.70 |
| | | | | | 6- 3-76 | 4.59 |
| | | | | | 7-13-76 | 4.45 |
| | | | | | 8- 4-76 | 4.22 |
| | | | | | 9- 9-76 | 3.81 |
| East Branch Tulalip Creek | Tulalip Creek | Lat 48°06'47", long 122°15'45", in NE¼SW¼ sec.2, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, at old logging road 400 ft (122 m) upstream from Mary Shelton Lake and 3.5 mi (5.6 km) north of Tulalip. | .80 | 1975 | 10- 7-75 | 0 |
| | | | | | 11- 5-75 | 0 |
| | | | | | 12-11-75 | 1.98 |
| | | | | | 1- 8-76 | 1.69 |
| | | | | | 2- 4-76 | .27 |
| | | | | | 3- 3-76 | .28 |
| | | | | | 4- 8-76 | .49 |
| | | | | | 5- 3-76 | .17 |
| | | | | | 6- 2-76 | 0 |
| | | | | | 7-12-76 | 0 |
| | | | | | 8- 3-76 | 0 |
| | | | | | 9- 8-76 | 0 |
| Do...... | Do...... | Lat 48°06'13", long 122°16'27", in SE¼NE¼ sec.10, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, 1,100 ft (335 m) upstream from reservoirs and 2.7 mi (4.3 km) north of Tulalip. | 1.50 | 1960,<br>1975 | 10- 8-75 | 1.29 |
| | | | | | 11- 5-75 | 1.42 |
| | | | | | 12-12-75 | 3.03 |
| | | | | | 1- 8-76 | 2.58 |
| | | | | | 2- 3-76 | 1.88 |
| | | | | | 3- 3-76 | 1.75 |
| | | | | | 4- 7-76 | 1.95 |
| | | | | | 5- 3-76 | 2.27 |
| | | | | | 6- 3-76 | 1.80 |
| | | | | | 7-13-76 | 1.50 |
| | | | | | 8- 5-76 | 1.77 |
| Do...... | Do...... | Lat 48°05'33", long 122°16'42", in NW¼NE¼ sec.15, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, at road crossing 1.9 mi (3.1 km) north of Tulalip. | 1.75 | 1960,<br>1975 | 10- 7-75 | 2.11 |
| | | | | | 11- 5-75 | 2.19 |
| | | | | | 12-12-75 | 4.58 |
| | | | | | 1- 7-76 | 4.37 |
| | | | | | 2- 3-76 | 2.75 |
| | | | | | 3- 2-76 | 2.80 |
| | | | | | 4- 7-76 | 4.90 |
| | | | | | 5- 3-76 | 2.65 |
| | | | | | 6- 2-76 | 2.79 |
| | | | | | 7-12-76 | 2.19 |
| | | | | | 8- 4-76 | 2.01 |
| | | | | | 9- 9-76 | 2.28 |
| Unnamed Spring | Do...... | Lat 48°04'58", long 122°16'15", in NE¼SE¼ sec.15, T.30 N., R.4 E., Snohomish County, Tulalip Indian Reservation, 1.5 mi (2.4 km) northeast of Tulalip. | --- | 1975 | 7-12-76 | .13 |
| | | | | | 8- 4-76 | .10 |
| Stillaguamish River basin | | | | | | |
| Stillaguamish River | Port Susan | Lat 48°11'48", long 122°12'33", in SW¼SE¼ sec.6, T.31 N., R.5 E., Snohomish County, at Interstate 5, 1.5 mi (2.4 km) east of Silvana, 6.7 mi (10.8 km) downstream from confluence of North and South Forks of Stillaguamish River, and at mile 11.1 (17.9 km). | 557 | 1938-39,<br>1943-44,<br>1966,<br>1974-75‡ | 11- 5-75 | 6,810 |
| Pilchuck Creek | Stillaguamish River | Lat 48°15'58", long 122°09'46", in NE¼NE¼ sec.16, T.32 N., R.5 E., Snohomish County, 500 ft (152 m) upstream from State Highway 9 bridge, 1.8 mi (2.9 km) north of Bryant, and at mile 6.4 (10.3 km). | 52.0 | 1923,<br>1929-31‡,<br>1950-51‡,<br>1952,<br>1952-75‡ | 11- 4-75 | 407 |
| Skagit River basin | | | | | | |
| Park Creek | Baker Lake | Lat 48°43'58", long 121°39'43", in SE¼SW¼ sec.32, T.38 N., R.9 E., Whatcom County, Mt. Baker National Forest, at Baker Lake road crossing, and 14.0 mi (22.5 km) north of Concrete. | --- | 1975 | 10-22-75 | 92.3 |
| Boulder Creek | Do...... | Lat 48°43'00", long 121°41'34", in SW¼SW¼ sec.6, T.37 N., R.9 E., Whatcom County, Mt. Baker National Forest, at Baker Lake road crossing, and 12.5 mi (20.1 km) north of Concrete. | 10.0 | 1975 | 10-22-75 | 92.3 |
| | | | | | 2- 4-76 | 71.9 |
| | | | | | 4-22-76 | 56.2 |
| | | | | | 6-23-76 | 127 |
| | | | | | 7-13-76 | 123 |
| | | | | | 8- 3-76 | 218 |
| | | | | | 8-31-76 | 224 |
| | | | | | 10-14-76 | 85.9 |
| Black Creek | Wiseman Creek | Lat 48°32'09", long 122°07'20", in NW¼SE¼ sec.11, T.35 N., R.5 E., Skagit County, 50 ft (15 m) upstream from private road, 2.8 mi (4.5 km) northwest of Lyman. | b.5 | 1974-75‡,<br>1975 | 5-15-75 | c5.33 |
| | | | | | 7- 9-75 | c.33 |
| | | | | | 9-22-75 | c.13 |
| | | | | | 12- 2-75 | 76.1 |
| | | | | | 1-20-76 | 7.06 |

‡ Operated as continuous-record station.

b Approximately.

c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1976

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| Minor Streams tributary to Skagit Bay | | | | | | |
| Unnamed tributary | Skagit Bay | Lat 48°22'57", long 122°21'48", in NW¼ sec.3, T.33 N., R.2 E., Skagit County, at road crossing 1.8 mi (2.9 km) southwest of La Conner. | --- | --- | 9- 4-75 | e0.02 |
| | | | | | 10-22-75 | .04 |
| | | | | | 1-21-76 | .02 |
| | | | | | 3-19-76 | e.04 |
| | | | | | 3-24-76 | e.01 |
| Do...... | Do...... | Lat 48°23'47", long 122°32'03", in NW¼NW¼ sec.34, T.34 N., R.2 E., Skagit County, at road crossing 0.6 mi (1.0 km) southeast of Snee-oosh Beach and 1.8 mi (2.9 km) west of La Conner. | --- | --- | 9- 4-75 | e.06 |
| | | | | | 10-22-75 | .08 |
| | | | | | 11-20-75 | .11 |
| | | | | | 12-17-75 | .76 |
| | | | | | 1-21-76 | .85 |
| | | | | | 3- 2-76 | .51 |
| | | | | | 3-24-76 | e.3 |
| | | | | | 4-21-76 | .44 |
| | | | | | 5-21-76 | .17 |
| | | | | | 6-14-76 | e.09 |
| | | | | | 7-23-76 | .09 |
| | | | | | 8-26-76 | .09 |
| | | | | | 9-24-76 | .07 |
| Minor Streams tributary to Padilla Bay | | | | | | |
| Unnamed tributary | Swinomish Channel | Lat 48°25'12", long 122°30'03", in NW¼SW¼ sec.24, T.34 N., R.2 E., Skagit County, 2.0 mi (3.2 km) north of La Conner. | --- | --- | 10-23-75 | 0.13 |
| | | | | | 11-20-75 | .16 |
| | | | | | 12-17-75 | .72 |
| | | | | | 1-21-75 | .67 |
| | | | | | 3- 2-76 | .59 |
| | | | | | 3-23-76 | e.4 |
| | | | | | 4-21-76 | .77 |
| | | | | | 5-21-76 | .16 |
| | | | | | 7-23-76 | .13 |
| | | | | | 8-26-76 | .12 |
| | | | | | 9-24-76 | .13 |
| Do...... | Do...... | Lat 48°25'55", long 122°30'54", in NW¼SE¼ sec.14, T.34 N., R.2 E., Skagit County, at county road 3.0 mi (4.8 km) north of La Conner. | --- | --- | 10-23-75 | .05 |
| | | | | | 1-21-76 | e.5 |
| | | | | | 3-19-76 | e.2 |
| | | | | | 3-23-76 | e.2 |
| | | | | | 4-21-76 | e.9 |
| | | | | | 5-21-76 | e.06 |
| | | | | | 7-23-76 | e.05 |
| | | | | | 8-26-76 | e.09 |
| Whatcom Creek basin | | | | | | |
| Olsen Creek | Lake Whatcom | Lat 48°45'05", long 122°21'08", in NW¼SW¼ sec.30, T.38 N., R.4 E., at North Shore Road, 500 ft (150 m) upstream from mouth and Lake Whatcom, and 6 mi (10 km) east of Bellingham. | 3.78 | 1948-49, 1954-56, 1959, 1967, 1968-69‡, 1975 | 11- 6-69 | c37.7 |
| | | | | | 12-20-69 | c8.68 |
| | | | | | 2- 4-70 | c14.0 |
| | | | | | 3-17-70 | c9.47 |
| | | | | | 5-13-70 | c4.54 |
| Nooksack River basin | | | | | | |
| Toss Creek | South Fork Nooksack River | Lat 48°47'48", long 122°11'23", in SE¼NW¼ sec.8, T.38 N., R.5 E., Whatcom County, at State Highway 9 crossing, headwater Williams Lake, 0.5 (0.8 km) north of Van Zandt. | --- | --- | 5- 4-76 | 2.68 |
| | | | | | 6- 3-76 | 1.35 |
| White Salmon River basin | | | | | | |
| Phelps Creek | White Salmon River | Lat 45°53'01", long 121°31'13", in NE¼NW¼ sec.35, T.5 N., R.10 E., Klickitat County, at State Highway 141, 2.5 mi (4.0 km) north of B-Z corner. | 1.88 | 1970-76a | 1- 4-70 | c39.6 |
| | | | | | 1-18-76 | c45.5 |
| | | | | | 1-22-74 | c22.6 |
| | | | | | 8-29-75 | c.66 |
| Rattlesnake Creek near Husum | Do...... | Lat 45°50'39", long 121°24'51", in SE¼SW¼ sec.10, T.4 N., R.11 E., Klickitat County, at road bridge, 4.7 mi (7.6 km) northeast of Husum. | 41.1 | 1969-75 | 11-11-75 | 4.55 |
| Wind River basin | | | | | | |
| Layout Creek | Trout Creek | Lat 45°49'01", long 122°02'50", near center of E½ sec.22, T.4 N., R.6 E., Skamania County, 1.5 mi (2.4 km) upstream from mouth and 12 mi (19.3 km) northwest of Carson. | 1.80 | 1966-75a | 8-28-75 | c5.75 |
| Washougal River basin | | | | | | |
| Washougal River | Columbia River | Lat 45°35'11", long 122°21'10", in NE¼ sec.53, T.1 N., R.4 E., Clark County, at State Highway 140 bridge in Washougal, and at mile 3.0 (4.8 km). | 144 | --- | 10-30-75 | 3,090 |
| | | | | | 1-20-76 | 1,540 |
| | | | | | 3- 9-76 | 768 |
| | | | | | 5-18-76 | 337 |
| | | | | | 7-13-76 | 214 |
| | | | | | 9-22-76 | 111 |

‡ Operated as continuous-record station.
c Not previously published.
e Estimated.
a Operated as crest-stage gage.

Discharge measurements made at miscellaneous sites during water year 1976

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | **Lake River basin** | | | | |
| Burntbridge Creek | Lake River | Lat 45°38'43", long 122°34'37", in SW¼NW¼ sec.67, T.2 N., R.2 E., Clark County, at northeast 31st Street, 0.7 mi (1.1 km) northeast of Vancouver Boy's Academy. | --- | 1976 | 12- 5-75<br>12-15-75<br>12-16-75<br>1- 3-76<br>1-10-76<br>2- 6-76<br>6-29-76 | 17.6<br>19.9<br>16.5<br>15.4<br>20.7<br>7.65<br>4.12 |
| Do...... | Do...... | Lat 45°38'05", long 122°37'22", in NE¼ sec.38, T.2 N., R.1 E., Clark County, at East 18th St. on the northeast city limits of Vancouver. | --- | 1976 | 11-29-75<br>12- 4-75<br>12- 5-75<br>12-15-75<br>12-16-75<br>1- 3-76<br>1-10-76<br>6-29-76<br>8- 9-76 | 0.55<br>26.8<br>20.6<br>29.8<br>26.1<br>25.0<br>29.4<br>4.60<br>3.99 |
| Do...... | Do...... | Lat 45°39'12", long 122°40'05", in NW¼SE¼ sec.15, T.2 N., R.1 E., Clark County, 800 ft (244 m) west of Hazel Dell Freeway. 0.5 mi (0.8 km) north of Vancouver city limits. | --- | --- | 12- 3-75<br>12-16-75<br>1- 3-76<br>1- 9-76<br>1-10-76<br>4-14-76<br>6-29-76<br>8- 9-76 | 60.5<br>30.1<br>30.0<br>62.1<br>33.9<br>15.4<br>6.29<br>4.80 |
| Salmon Creek | Do...... | Lat 45°46'26", long 122°26'40", in NE¼SW¼ sec.4, T.3 N., R.3 E., Clark County, 100 ft (30 m) upstream from highway bridge, 150 ft (46 m) downstream from Rock Creek, 4.3 mi (6.9 m) east of Battle Ground, and at mile 22.1 (35.6 km). | 18.3 | 1944-75‡,<br>1976a | 11- 6-75 | 43 |
| | | **Kalama River basin** | | | | |
| Kalama River | Columbia River | Lat 46°02'42", long 122°48'51", in NE¼SW¼ sec.33, T.7 N., R.1 W., Cowlitz County, 5.7 mi (9.2 km) downstream from Italian Creek, 2.8 mi (4.5 km) northeast of Kalama, and at mile 4.2 (6.8 km). | 198 | 1947-75‡,<br>1976a | 11- 6-75<br>7-15-76<br>7-30-76 | 1,900<br>592<br>398 |
| | | **Cowlitz River basin** | | | | |
| Cowlitz River | Columbia River | Lat 46°08'44", long 122°54'47", in NW¼SE¼ sec.27, T.8 N., R.2 W., Cowlitz County, at Allen Street bridge, at Kelso, and at mile 5.0 (8.0 km). | 2,349 | --- | 1- 8-75 | e23,000 |
| | | **Elochoman River basin** | | | | |
| Elochoman River | Columbia River | Lat 46°13'17", long 123°20'28", in NE¼SE¼ sec.31, T.9 N., R.5 W., Wahkiakum County, 125 ft (38.1 m) upstream from railroad bridge, 2.4 mi (3.9 km) northeast of Cathlamet, and at mile 5.0 (8.0 km). | 65.8 | 1941-71‡,<br>1972-76a,<br>1973 | 11-24-75<br>3-15-76<br>6-14-76<br>8-30-76 | 999<br>325<br>96<br>86 |
| | | **Grays River basin** | | | | |
| Grays River | Columbia River | Lat 46°23'36", long 123°28'39", in NW¼ sec.31, T.11 N., R.6 W., Pacific County, 500 ft (152 m) upstream from South Fork, 6.8 mi (10.9 km) northeast of town of Grays River, and at mile 17.8 (28.6 km). | 39.9 | 1956-75‡,<br>1976a | 10-28-75 | 1,220 |
| Do...... | Do...... | Lat 46°21'34", long 123°33'55", in SE¼SE¼ sec.8, T.10 N., R.7 W., Wahkiakum County, 2.2 mi (3.5 km) east of town of Grays River, on State Highway 4 and at mile 11.6 (18.7 km). | 92.5 | 1958,<br>1959,<br>1973 | 11-24-75<br>3-15-76<br>6-14-76<br>8-30-76 | 1,850<br>487<br>175<br>380 |

‡ Operated as continuous-record station.
a Operated as crest-stage gage.
c Not previously published.

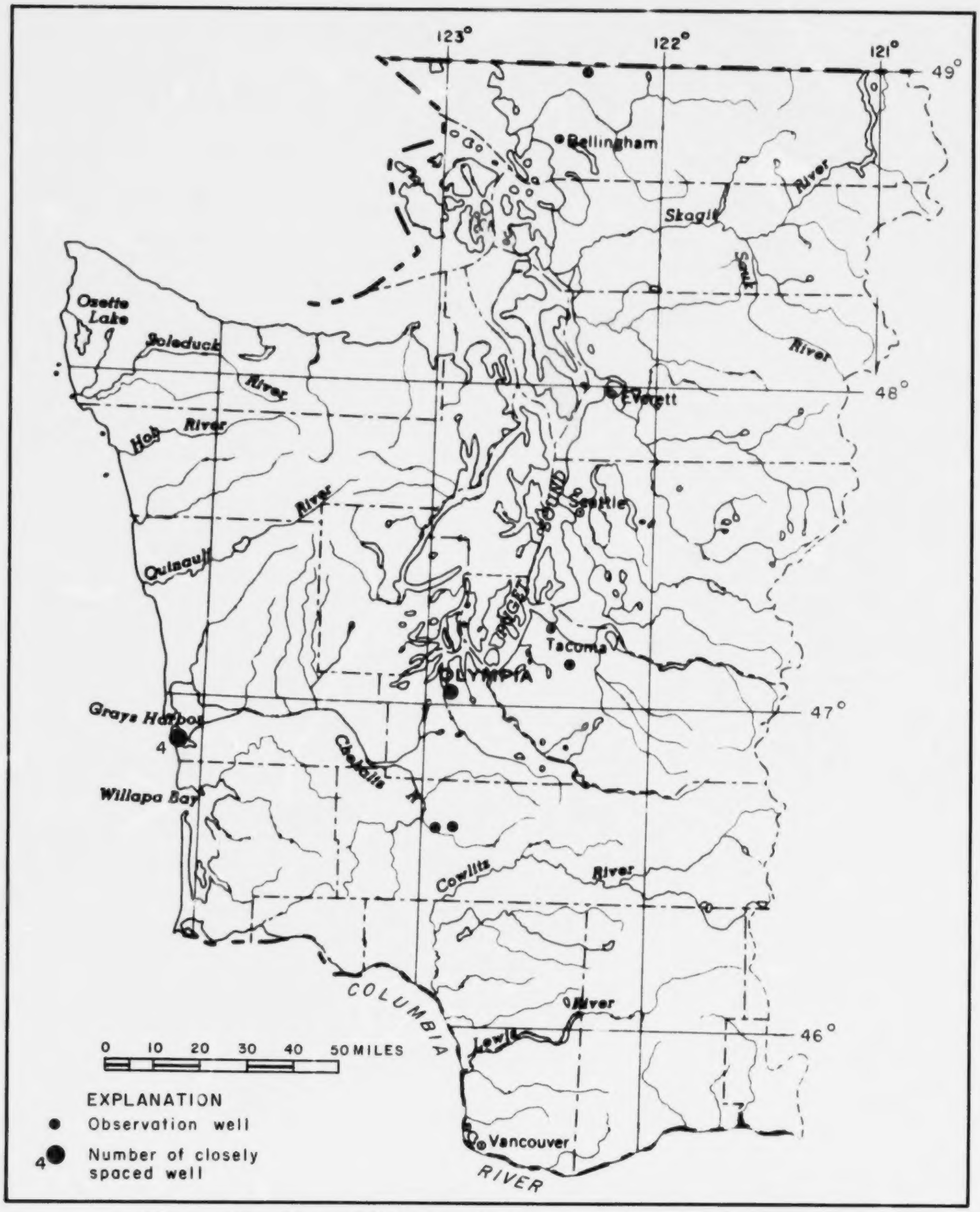
123°
122°
121°
49°
48°
47°
46°
Bellingham
Skagit River
Sauk River
Ozette Lake
Soleduck River
Hoh River
Everett
Quinault River
Seattle
Puget Sound
Tacoma
Olympia
Grays Harbor
4
Willapa Bay
Chehalis R
Cowlitz River
Columbia River
Lewis River
Vancouver
0 10 20 30 40 50 MILES
EXPLANATION
● Observation well
4● Number of closely spaced well

Figure 21. Map of Western Washington showing locations of ground-water level observations.

## GRAYS HARBOR COUNTY

465123124062201. Local number, 16/12W-24J4.
LOCATION.--Lat 46°51'23", long 124°06'22", Hydrologic Unit 17100106, near Westport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 700 ft (213.4 m), 12 in (300 mm) diameter casing to 398 ft (121.3 m), 8 in (200 mm) diameter casing 378 to 678 ft (115.2 to 206.7 m), perforated 187 to 192 ft (57.0 to 58.5 m), 269 to 279 ft (82.0 to 85.0 m), 327 to 332 ft (99.7 to 101.2 m), and 516 to 521 ft (157.3 to 158.8 m).
DATUM.--Land-surface datum is 16 ft (4.9 m) above mean sea level.
REMARKS.--Monitored depth interval from 187 to 192 ft (57.0 to 58.5 m), water level measured in 12 in (300 mm) diameter casing.
PERIOD OF RECORD.--March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.19 ft (2.801 m) below land-surface datum, Mar. 14, 1972; lowest measured, 11.05 ft (3.368 m) below land-surface datum, Oct. 4, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Water Level | Date | Water Level | Date | Water Level | Date | Water Level |
|---|---|---|---|---|---|---|---|
| Oct. 30, 1975 | 9.86 | Apr. 22, 1976 | 9.93 | | | | |

465123124062202. Local number, 16/12W-24J5.
LOCATION.--46°51'23", long 124°06'22", Hydrologic Unit 17100106, near Westport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 700 ft (213.4 m), 12 in (300 mm) diameter casing to 398 ft (121.3 m), 8 in (200 mm) diameter casing 378 to 678 ft (115.2 to 206.7 m), perforated 187 to 192 ft (57.0 to 58.5 m), 269 to 279 ft (82.0 to 85.0 m), 327 to 332 ft (99.7 to 101.2 m), and 516 to 521 ft (157.3 to 158.8 m).
DATUM.--Land-surface datum is 16 ft (4.9 m) above mean sea level.
REMARKS.--Monitored depth interval from 269 to 279 ft (82.0 to 85.0 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.84 ft (2.694 m) below land-surface datum, Mar. 14, 1972; lowest measured, 98.50 ft (30.023 m) below land-surface datum, June 23, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Water Level | Date | Water Level | Date | Water Level | Date | Water Level |
|---|---|---|---|---|---|---|---|
| Oct. 30, 1975 | 9.56 | Apr. 22, 1976 | 9.99 | | | | |

465123124062203. Local number, 16/12W-24J6.
LOCATION.--Lat 46°51'23", long 124°06'22", Hydrologic Unit 17100106, near Westport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 700 ft (213.4 m), 12 in (300 mm) diameter casing to 398 ft (121.3 m), 8 in (200 mm) diameter casing 378 to 678 ft (115.2 to 206.7 m), perforated 187 to 192 ft (57.0 to 58.5 m), 269 to 279 ft (82.0 to 85.0 m), 327 to 332 ft (99.7 to 101.2 m), and 516 to 521 ft (157.3 to 158.8 m).
DATUM.--Land-surface datum is 16 ft (4.9 m) above mean sea level.
REMARKS.--Monitored depth interval from 327 to 332 ft (99.7 to 101.2 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.87 ft (2.704 m) below land-surface datum, Apr. 5, 1972; lowest measured, 10.27 ft (3.130 m) below land-surface datum, Aug. 17, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Water Level | Date | Water Level | Date | Water Level | Date | Water Level |
|---|---|---|---|---|---|---|---|
| Oct. 30, 1975 | 9.42 | Apr. 22, 1976 | 9.66 | | | | |

465123124062204. Local number, 16/12W-24J7.
LOCATION.--Lat 46°51'23", long 124°06'22", Hydrologic Unit 17100106, near Westport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Sandy clay of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 700 ft (213.4 m), 12 in (300 mm) diameter casing to 398 ft (121.3 m), 8 in (200 mm) diameter casing 378 to 678 ft (115.2 to 206.7 m), perforated 187 to 192 ft (57.0 to 58.5 m), 269 to 279 ft (82.0 to 85.0 m), 327 to 332 ft (99.7 to 101.2 m), and 516 to 521 ft (157.3 to 158.8 m).
DATUM.--Land-surface datum is 16 ft (4.9 m) above mean sea level.
REMARKS.--Monitored depth interval from 516 to 521 ft (157.3 to 158.8 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.66 ft (2.640 m) below land-surface datum, Oct. 24, 1973; lowest measured, 10.32 ft (3.146 m) below land-surface datum, Aug. 7, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Water Level | Date | Water Level | Date | Water Level | Date | Water Level |
|---|---|---|---|---|---|---|---|
| Oct. 30, 1975 | 11.01 | Apr. 22, 1976 | 9.75 | | | | |

463441122485201. Local number, 13/1W-28P1.
LOCATION.--Lat 46°34'41", long 122°48'52", Hydrologic Unit 17100103.
Owner: R. L. Wade.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic and irrigation artesian well, diameter 6 in (150 mm), depth 112 ft (34.1 m), cased to 112 ft (34.1 m).
DATUM.--Land-surface datum about 360 ft (110 m) above mean sea level.
PERIOD OF RECORD.--Highest water level measured, 63.8 ft (19.45 m) above land-surface datum, Apr. 18, 1954; lowest measured, 15.6 ft (4.75 m) above land-surface datum, Feb. 7, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Water Level | Date | Water Level | Date | Water Level | Date | Water Level |
|---|---|---|---|---|---|---|---|
| Oct. 1, 1975 | +26.1 | Mar. 8, 1976 | +27.60 | | | | |

463532122393202. Local number, 13/1-22R2.
LOCATION.--Lat 46°35'32", long 122°39'32", Hydrologic Unit 17100103.
Owner: Chas. E. Greene.
AQUIFER.--Glacial clay and sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 8 in (200 mm), depth 150 ft (45.7 m), cased to 113 ft (34.4 m).
DATUM.--Land-surface datum about 600 ft (183 m) above mean sea level.
PERIOD OF RECORD.--March 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.1 ft (8.56 m) above land-surface datum, Jan. 5, Feb. 7, May 12, June 23, 1967; lowest measured, 3.5 ft (1.07 m) above land-surface datum, Nov. 20, 1972, Oct. 16, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Water Level | Date | Water Level | Date | Water Level | Date | Water Level |
|---|---|---|---|---|---|---|---|
| Oct. 1, 1975 | +10.5 | Mar. 8, 1976 | +11.00 | | | | |

## PIERCE COUNTY

470933122182001. Local number, 19/4-4L1.
LOCATION.--Lat 47°09'33", long 122°18'20", Hydrologic Unit 17110014.
Owner: Fruitland Mutual Water Company.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 240 ft (73.2 m), cased to 240 ft (73.2 m), perforated 200 to 235 ft (61.0 to 71.6 m).
DATUM.--Land-surface datum about 355 ft (108.2 m) above mean sea level.
PERIOD OF RECORD.--June 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 207.80 ft (63.337 m) below land-surface datum, Aug. 10, 1972; lowest measured, 239.28 ft (72.933 m) below land-surface datum, Feb. 1, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Water Level | Date | Water Level | Date | Water Level | Date | Water Level |
|---|---|---|---|---|---|---|---|
| Oct. 10, 1975 | 214.03 | Mar. 2, 1976 | 227.30 | July 6, 1976 | 221.64A | Sept. 1, 1976 | 222.07 |
| Dec. 30 | 223.14 | May 6 | 219.50 | | | | |

## WHATCOM COUNTY

485934122193801. Local number, 40/4-5D1.
LOCATION.--48°59'34", long 122°19'38", Hydrologic Unit 17110001, Van Buren and Hoverstick Roads, Sumas.
Owner: Paul Roorda.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug domestic and stock water-table well, 20 by 30 in (500 by 750 mm), depth 61 ft (18.6 m), lined with concrete to 61 ft (18.6 m).
DATUM.--Land-surface datum about 180 ft (55 m) above mean sea level.
REMARKS.--Water levels used in monthly Water Resources Review.
PERIOD OF RECORD.--October 1940 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.98 ft (14.624 m) below land-surface datum, Mar. 20, 1972; lowest dry, water level not measureable, Jan. 10, 1944, Oct. 4, 1944, Jan. 1, 1953, Sept. 30, 1958, Nov. 27, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Date | Water Level | Date | Water Level | Date | Water Level | Date | Water Level |
|---|---|---|---|---|---|---|---|
| Oct. 26, 1975 | 56.48 | Jan. 25, 1976 | 49.48 | Apr. 22, 1976 | 50.68 | Aug. 25, 1976 | 52.83 |
| Nov. 25 | 55.48 | Feb. 26 | 49.48 | May 23 | 51.03 | Sept. 25 | 53.63 |
| Dec. 26 | 51.46 | May 26 | 50.23 | July 25 | 52.68 | | |

+ Water levels above land surface.
A Well being pumped.

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August 6, 1976

## FACTORS FOR CONVERTING ENGLISH UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the English units published herein to the International System of Units (SI). Subsequent reports will contain both the English and SI unit equivalents in the station manuscript descriptions until such time that all data will be published in SI units.

| Multiply English units | By | To obtain SI units |
|---|---|---|
| | *Length* | |
| inches (in) | $2.54\times10^{1}$ | millimeters (mm) |
| | $2.54\times10^{-2}$ | meters (m) |
| feet (ft) | $3.048\times10^{-1}$ | meters (m) |
| miles (mi) | $1.609\times10^{0}$ | kilometers (km) |
| | *Area* | |
| acres | $4.047\times10^{3}$ | square meters ($m^2$) |
| | $4.047\times10^{-1}$ | *hectares (ha) |
| | $4.047\times10^{-1}$ | square hectometers ($hm^2$) |
| | $4.047\times10^{-3}$ | square kilometers ($km^2$) |
| square miles ($mi^2$) | $2.590\times10^{0}$ | square kilometers ($km^2$) |
| | *Volume* | |
| gallons (gal) | $3.785\times10^{0}$ | **liters (l) |
| | $3.785\times10^{0}$ | cubic decimeters ($dm^3$) |
| | $3.785\times10^{-3}$ | cubic meters ($m^3$) |
| million gallons ($10^6$ gal) | $3.785\times10^{3}$ | cubic meters ($m^3$) |
| | $3.785\times10^{-3}$ | cubic hectometers ($hm^3$) |
| cubic feet ($ft^3$) | $2.832\times10^{1}$ | cubic decimeters ($dm^3$) |
| | $2.832\times10^{-2}$ | cubic meters ($m^3$) |
| cfs-days [$(ft^3/s)\cdot d$] | $2.447\times10^{3}$ | cubic meters ($m^3$) |
| | $2.447\times10^{-3}$ | cubic hectometers ($hm^3$) |
| acre-feet (acre-ft) | $1.233\times10^{3}$ | cubic meters ($m^3$) |
| | $1.233\times10^{-3}$ | cubic hectometers ($hm^3$) |
| | $1.233\times10^{-6}$ | cubic kilometers ($km^3$) |
| | *Flow* | |
| cubic feet per second ($ft^3/s$) | $2.832\times10^{1}$ | liters per second (l/s) |
| | $2.832\times10^{1}$ | cubic decimeters per second ($dm^3/s$) |
| | $2.832\times10^{-2}$ | cubic meters per second ($m^3/s$) |
| gallons per minute (gal/min) | $6.309\times10^{-2}$ | liters per second (l/s) |
| | $6.309\times10^{-2}$ | cubic decimeters per second ($dm^3/s$) |
| | $6.309\times10^{-5}$ | cubic meters per second ($m^3/s$) |
| million gallons per day (mgal/d) | $4.381\times10^{1}$ | cubic decimeters per second ($dm^3/s$) |
| | $4.381\times10^{-2}$ | cubic meters per second ($m^3/s$) |
| | *Mass* | |
| tons (short) | $9.072\times10^{-1}$ | tonnes (t) |

*The unit hectare is approved for use with the International System (SI) for a limited time. See NBS Special Bulletin 330, p.15, 1972 edition.

**The unit liter is accepted for use with the International System (SI). See NBS Special Bulletin 330, p. 13, 1972 edition.